FLORIDA WILDLIFE®

Volume 45, Number 2
March-April 1991

They don't trash your home. Why trash theirs?

TOM EVANS

Stow trash until it can be disposed of properly on land.

FLORIDA WILDLIFE®

Volume 45, Number 2 March-April 1991

Lake Okeechobee

This issue of FLORIDA WILDLIFE focuses on Lake Okeechobee with five articles examining different aspects of Florida's most famous lake (see pages 10-26).

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Call it "black crappie," or call it "speckled perch." Doug Stamm photographed the *Pomoxis nigromaculatus* on the front cover. For the back cover, Tom Ulrich captured the brown pelican on film. Read about the recovery of this bird in Florida in an article by Stephen Nesbitt.

National Wildlife Week
April 21-27, 1991
"Fragile Frontiers"

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Publisher

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Ocala Youth Camp

We Work for the Kids, the Land and the Future

By Mary M. Davis

As Yogi Berra would say, "It was deja vu all over again." When I volunteered at the Ocala Youth Conservation Camp (OYCC) recently, I took not one but two trips into the past.

You see, I'm all grown up now and employed by the Florida Game and Fresh Water Fish Commission as a writer. But in my heart is the little girl who learned about wildlife, outdoor skills, firearms, first aid, archery, canoeing and swimming during fun-filled summers at the OYCC. Also in my heart is the teenager who not so long ago soothed, sang, schooled and sweat as a counselor at the camp of her childhood.

Lt. Roger Williams, director of the OYCC, coined a motto that sums up the Commission's objective for its youth conservation camps. The motto — now emblazoned on staff shirts — explains why, after more than 37 years, parents keep sending their children to the OYCC to learn about wild Florida. And why former campers like me keep going back for more.

Williams said it best when he said, "We work for the kids, the land and the future."

The OYCC, nestled deep within the Ocala National Forest on the shores of Lake Eaton, is one of two conservation camps sponsored by the Commission. The other camp, the Everglades Youth Conservation Camp, is in J.W. Corbett Wildlife Management Area in Palm Beach County (see Everglades Youth Camp article, page 4).

VINARD HITT

The Commission acquired the camp in the early 1950s. Conservation clubs and youth groups held ecology education retreats at the site until the Commission took control of enrollment and programming in 1958.

Although times have changed, goals of the camping experience have not: to help children understand and appreciate Florida's unique wildlife and wildlands, to provide them experiences in fishing, swimming, canoeing, archery and riflery, and to provide them opportunities to learn first aid and outdoor survival skills.

"Every summer, we have more and more kids who have never taken a hike in the woods, never ridden in a canoe, never seen a deer or heard the screech of an owl," Williams said. "I think the most rewarding part of this job is sharing Florida's natural heritage with them. And there's nothing more rewarding than the look on a kid's face when he succeeds at something he thought he couldn't do, like build a lean-to shelter or shoot a gun at the range or survive a night in the woods."

According to Judy Gillan, director of education and coordinator of the Commission camping program, both camps offer four types of camping. The introductory, intermediate, expedition and hunter education programs appeal to different ages and interests.

"The programs are tailored so children can learn at levels that are appropriate to their ages. The programs build on one another, so each summer, youngsters can improve their knowledge and skills in each area," Ms. Gillan said. "In expedition, experienced campers spend a night or two in the woods practicing their new skills. And in the hunter education curriculum, children whose families hunt can earn hunter education certification, which, beginning June 1, will be required of hunters born on or after June 1, 1975."

In addition to classes in ecology, fishing, swimming, canoeing, archery, riflery and outdoor survival skills, activities from the conservation and environmental

VINARD HITT

ROGER WILLIAMS

education program, Project WILD, are woven into camp curriculum.

"Project WILD activities are fun. The kids play games that teach them about the interdependency of animals and habitat. The activities bring the lessons alive," Gillan said.

When FLORIDA WILDLIFE editor Andrea Blount asked me to write an article for the magazine about my experiences at the OYCC, I was a little hesitant. One of the rules of journalism is to stay out of the stories you write.

"But this is an exception," she explained. And I agree. I've been fortunate enough to experience the camp from three different perspectives — as camper, counselor and adult volunteer. And with each encounter, I've become more aware of the importance of what the Commission is doing through its camping program.

Most of my memories as a camper are of the fun I had — shooting a gun for the first time (in a safe, well-monitored environment, of course), learning to build a campfire, tipping a canoe, and eating a grasshopper and drinking pine needle tea in outdoor skills class. I was the kid who pretended to have a snake bite so other kids could apply treatment (keep the person calm, treat for shock and transport to the hospital — do not apply a tourniquet!) But my favorite memory as a camper is being crowned Mr. YCC. The boys' and girls' cabins swapped campers and dressed their new additions for the Mr. and Miss YCC pageant that night. I was Big Bad Bart, a rough and tough Florida Cracker who could wrestle a gator in three seconds flat.

Although I had fun during my two summers as a counselor, my memories are of what we taught the children, and how we did it. My favorite evening program was music by Dale and Linda Crider, who write and record environmental music. Dale Crider is an education specialist with the Commission. What child wouldn't sympathize with the plight of the Florida panther after singing along on "The Last Cries of Panther," or understand the need for habitat protection after singing about being "Wild and Free"?

It was only after my experience as a volunteer, however, that I realized just what was really going on at the OYCC. I realized that Williams' motto — We Work for the Kids, the Land and the Future — aptly describes the Commission's mission.

Kids come from all over — city kids and country kids, kids from broken homes, kids who need a chance to succeed. Commission youth camps give youngsters a week away from mom and dad to learn that they can survive without constant parental support. And they discover that they are good at archery or swimming or identifying snakes or building a campfire.

Commission camps teach children that wildlife needs wildlands, and that it is up to each of us to protect habitat. Kids learn the damage to the environment caused by pollution, poaching, over-development and introducing non-native species into the wild.

And the camps ensure that Florida has future leaders who understand the relationship between man and environment, and who are determined to protect our natural resources for generations to come.

Former camper/counselor Mary Davis is an information specialist in the Commission's Tallahassee office.

Everglades Youth Camp

Growing Awareness in a Shrinking Wilderness

Text and Photographs by Mary Tebo

He had the green alligators.
The long-necked geese,
The humpy-backed camels
And the chimpanzees—
He had cats and rats and elephants
But sure as you're born:
Ain't nobody seen those unicorns!

Forty-two voices sang to the surrounding swamp the story of how the unicorns wouldn't board Noah's ark. Every now and then somebody would tickle or punch a neighbor and the chorus would lose some of its members to laughter and scuffling. The night seemed darker than ever before and the sky bigger, with more stars. But of course, that's always how it is the first night of summer camp.

This wasn't just any summer camp, though, and the unicorn song took on new meaning when all the campers packed into the dining hall and looked at slides of the bald eagle, the Florida panther and the caracara.

"When habitat's gone, wildlife's gone — you can't have one without the other," explained Lt. Ernie Kern, director of the Everglades Youth Conservation Camp. Everyone sat transfixed, not so much by his eloquence as by the moving, breathing bobcat he brought in to show them: Tigger.

"Wouldn't it be something if you had to get a book to see a picture of Tigger because there weren't any live bobcats left? More species will go extinct in your lifetime than I've ever even seen in mine.

"When you're born you have a responsibility: to breathe and live. But every day that word — responsibility — gets bigger. And I'm telling you, wildlife is your responsibility."

The Everglades Youth Camp is located on J.W. Corbett Wildlife Management Area in Palm Beach County, about 20 miles from the eastern shore of Lake Okeechobee. Each summer, this camp and the other GFC youth camp at Ocala teach approximately 1,600 children, aged 8 to 14, about wildlife ecology, fishing, archery, hunting, gun safety, and skeet-shooting. And each camp tells the tale of Florida's incredible shrinking wilderness.

At the Everglades Youth Camp, however, this story is poignantly obvious. The very name of the camp, "Everglades," though it may seem like a misnomer to the uninformed, recalls a time when this great grassy wetland stretched from the margins of Okeechobee to the southwest edge of Florida, a moving sheet of water.

"We're just a tiny sample of what the northern Everglades used to be," Kern said, drawing a diagram, "and we're hedged in on every side — subdivisions and citrus on the south and east, Pratt-Whitney defense contractors to the north, and New Hope Sugar to the west.

"Even though Corbett is maintained in its pristine state, it's being hurt by development of the land around it, particularly drainage."

The picture became clearer after Kern turned me over to Corbett's biological technician, Bubba Baker. Baker took me on a tour of Corbett's 4,000 acres of wetlands, hardwood hammocks and slash pine islands — some of which support nesting red-cockaded woodpeckers. He described how water preserves these hammocks and islands, acting as a moat against fire in the summer and a hot-water bottle in the winter. We stopped at Indian mounds where families of hunters and fishers had taken shelter on high ground for hundreds of years during their forays into the Everglades. As we headed west, more and more of the saw grass so characteristic of this vast wetland began to appear.

"Are you ready for a look at the Everglades?" he asked as we drove up an incline — a strange feature in this flat, flat land. "We're almost there; you're about to see it: the great river of grass!"

He stopped the truck. We were parked on a dike. Beneath it flowed a canal, and beyond that, as far as the eye could see, grew sugar cane.

Back at camp, it was business as usual. Ten pairs of hunter education students were making their way through the hunter safety cross-country course, climbing in and out of a grounded canoe, handing their mock shotguns to their partners until they were safely out of the boat. Down by the lake, another group was split between those waiting restlessly by the shore until it was time to swim and those who were lolling in the shade under the trees. At the canal, a young fisherman asked me to hold his prize catch while he ran to get his camera.

At the wildlife conservation course, campers were learning about how each species needs food, water, shelter and space. The assignment was to create an animal that could survive in the future, considering what kind of food and how much water, shelter and space there might be in the years to come.

"This is a beer can fish," explained one camper. "It can eat beer cans with these big teeth. It will always have enough to eat because there's always a lot of beer cans in the river."

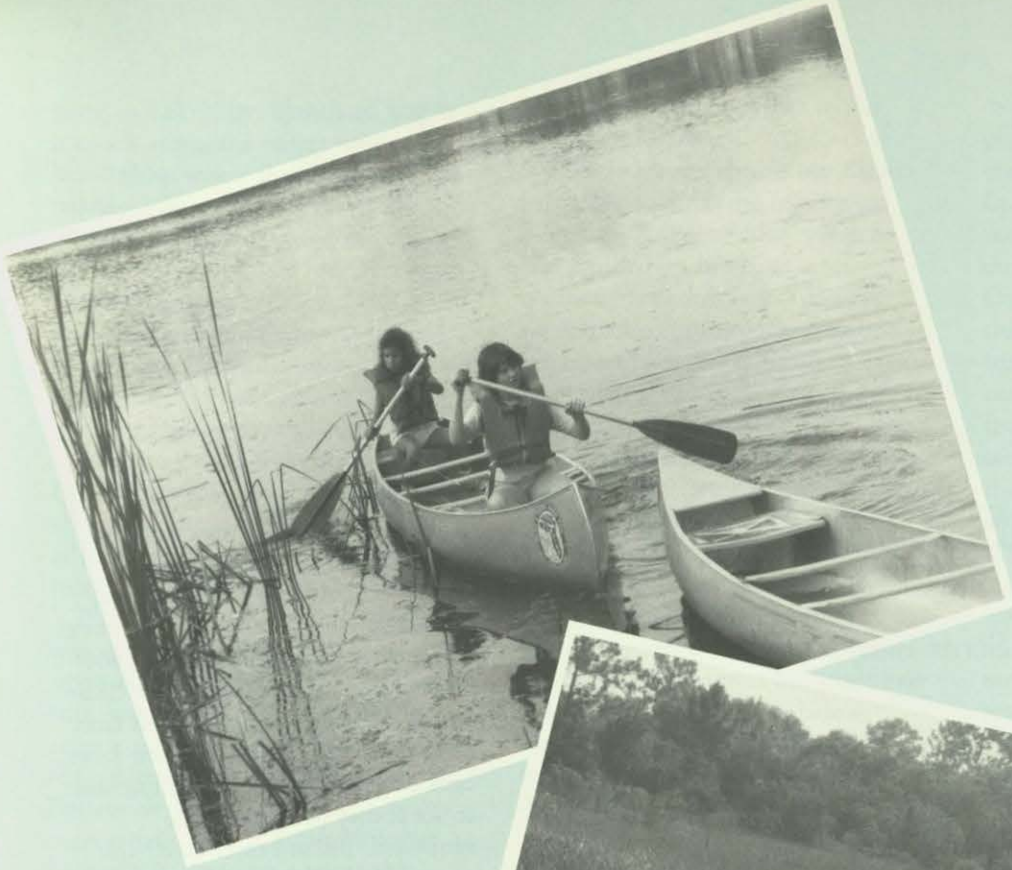
Another camper was drawing a sort of bionic buck, with a huge rack, big muscles and glowering eyes.

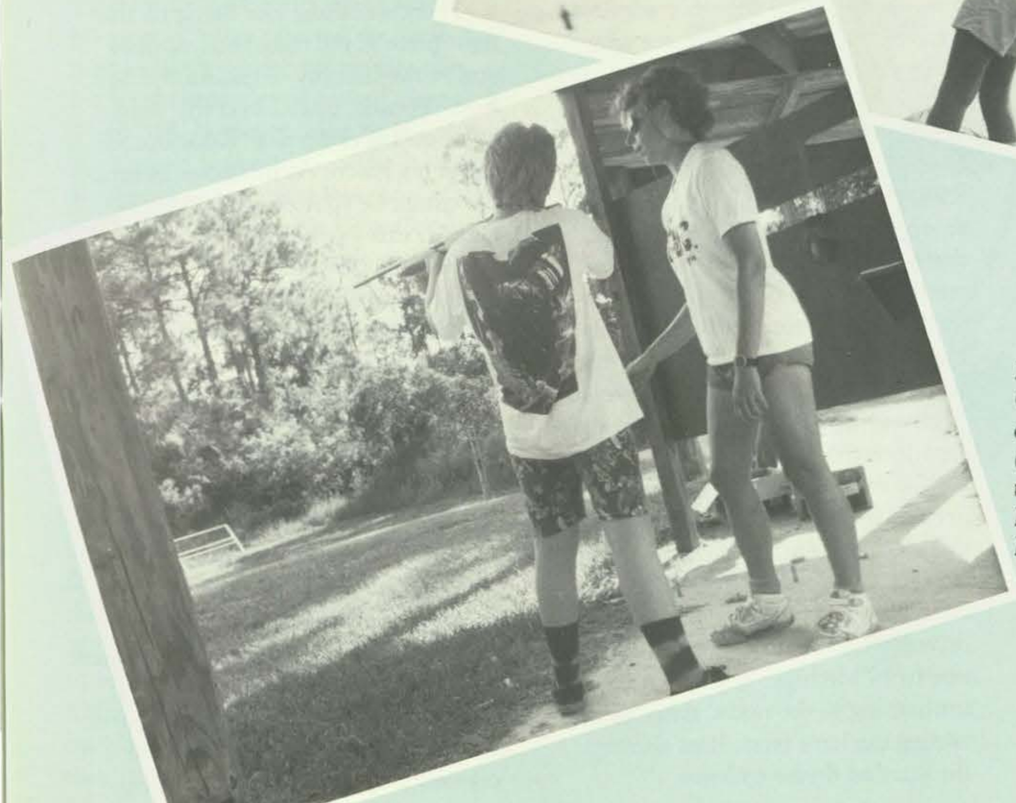
"That's a great deer," I told him, "but how do you know it will have enough food and water?"

He was impatient with my question. "Because I'll make sure he has what he needs," he answered.

Looking up at me he asked, "Isn't that the whole idea?"

Mary Tebo was assistant editor when she wrote this article. She's now a frequent contributor to this magazine.





For registration information for the Ocala camp, contact the Commission's central regional office in Ocala at (904) 732-1225. For information about the Everglades camp, call the Everglades regional office in West Palm Beach at (407) 640-6100.

"How Was Your Day?"

By Scott Ball

In a wildlife-related job, it's often the humans who make the work interesting and sometimes humorous.

Most of us are lucky. We enjoy our work. Others, for one reason or another, do not share our career-bliss. Psychologists and public opinion pollsters conduct studies to determine how people feel about what they do for a living. They analyze and arrange the results according to all sorts of specific categories and demographic groups. ("Thirty-seven percent of all blue-eyed piano tuners over 40 are somewhat dissatisfied with their careers.")

If such surveys included wildlife officers, you'd probably find that most of them are happy with their jobs. The majority would say they love their work. Ask why, and you'll get answers along the lines of "I love the outdoors," or "I care about wildlife and conservation." And don't forget the ever-popular "No two days are ever the same," a key to avoiding burnout in any career.

Granted, being a wildlife officer is difficult and requires a lot of training. The job can be dangerous; all law-enforcement work is. But so much can happen to keep wildlife law enforcement from being mundane, monotonous work. Wildlife officers deal with a variety of people and situations that make the job anything but dull. Every day brings something different and, quite often, the episodes are amusing. Police officers, sheriffs' deputies or state troopers would likely agree.

Take a look at the following stories, gleaned from monthly administrative reports, and you'll see why there's more to being a wildlife officer than checking licenses and bag limits.

▷ Lt. Col. Dan Dunford, Maj. Jim Ries and Lt. Jim Truitt didn't see anything unusual as they patrolled the Big Cypress Wildlife Management Area by helicopter — except for that naked man getting into his car. Concerned about what the man might be up to, pilot Truitt hovered overhead while Ries displayed a sign identifying themselves as law enforcement officers. The man, now dressed, accelerated his car down the road, leading the chopper on a 10-mile chase. They finally landed at an intersection and stopped the driver, who turned out to be a visitor from Michigan who enjoyed sunbathing in the nude. After ascertaining the bare facts, Ries allowed the startled driver to leave.

▷ In Collier County, Wildlife Officer Mark Bishard encountered several canoeists in a canal off Alligator Alley. When he asked to see their personal flotation devices, they admitted to having none. Being soft-hearted that day, he issued one individual a warning and requested that he and his friends pick up their beer cans before they left. Returning later to see if they had done as he requested, Bishard discovered the warning ticket, wadded up and discarded. He tracked down the group again and, instead of a warning, he gave the man a citation for littering, not buying his story about losing the ticket. The judge was not sympathetic either. He fined the man $500, with three months probation and 24 hours of community service — specifically, picking up trash near the littered area.

▷ There's nothing like being in the right place at the right time, unless you're the bad guy in this story. Sgt. Ron Woodall pulled into the yard of a hunting camp near Lake Butler to eat his lunch. As he drove behind the camp, he spotted a man struggling to exit a window. According to the report, "Woodall immediately switched modes from bean-time to crime-fighter and bagged the villain who had loaded nearly everything from the camp into his truck." The writer of this report commented further that he had never seen a hunt camp, including his own, that had anything worth stealing.

▷ Vanity can get you into trouble, especially if you've broken the law, as the next two stories reveal.

While on their way to a retirement party in Tallahassee, Lt. C.W. Daniels and officers Paul Blanchard and Paul Furbay, dressed in their civvies, stopped to do some shopping in Lake City. Blanchard was in a clock store, the others were in a boot shop where they overheard the manager bragging to a customer about killing an alligator. He even offered to display the hide and head. Daniels and Furbay tagged along, and sure enough, there was the hide, with head attached, soaking in a curing solution. None of the off-duty officers had a citation book, so they called the Lake City regional office. Lt. Larry Johnson came to their aid and cited the individual, who actually had not killed the gator, but had purchased the illegal hide.

If the daily bag limit for turkeys was one bird, and you killed two on opening day of spring gobbler season, would you: (A) Keep it a secret, or (B) Pose with the evidence for a picture in the local newspaper? Believe it or not, a Wakulla County man chose "B." Wildlife Biologist Morgan Richardson noticed the photograph and shared it with Sgt. Charles Chafin, who followed up on the tip.

▷ Two Miami gentlemen took the daily double one morning. Officer Washburn Wear arrested them for hunting rabbits without a license. He told the men to go to nearby South Bay and purchase licenses if they wished to continue hunting. Two and a half hours later Officer Hampton Yates arrested the same two individuals for unlawfully taking moorhens during closed season. They did, however, have their newly purchased licenses.

▷ Another two-time loser is a young man arrested in Leon County for possession of a stolen jet ski. He told Officer Daryl Amerson that he was a criminology student and this arrest would ruin his career. A week later, the same young man and a friend were arrested while tending their marijuana crop in the Apalachicola National Forest. The student was wearing a .45-caliber pistol at the time, which also is against the law. We doubt that you will find these episodes listed on his resume.

▷ Wildlife officers are authorized to enforce all laws of the state, even traffic laws. But the next two stories may help you to understand why they might prefer to confine their law enforcement activities to the woods and waters.

Officer Monte Hinkle was directing traffic at the scene of a six-car pileup on Alligator Alley when he was struck by a motorist who claimed his brakes failed. Hinkle was knocked into a parked ambulance and later was airlifted to Naples Hospital. Although first thought to be seriously injured, he was released the next day.

In Leon County, Officer Daryl Amerson encountered an irate motorist while trying to stop traffic so a helicopter could pick up an injured person. When he finally got the vehicle stopped, the motorist tried to push him over the guard rail to the interstate highway below. Needless to say, the driver was charged with battery on a law enforcement officer.

▷ Sometimes, even the best-laid plans of wildlife officers don't go exactly right. Capt. Wayne King and Lt. Terry Young had concluded their investigation into the illegal dumping of septic sewage in Putnam County. They had planned to make their arrest and seize the pumping truck at a time when it would not contain any of the stuff normally found in that sort of truck. They served their warrant and hired a tow truck to take the vehicle away. It was just a smelly shame that the offending truck had broken down, leaving the owner unable to dump his latest load. After recording serial numbers and other information, the quick-thinking officers receipted the truck back to the defendant.

▷ Did you ever hear about the baseball player who claimed that a pitched ball had struck him on the ▷

foot? The umpire refused to believe him until an inspection of the ball revealed shoe polish. Officer Adolphe Rogers got to be the "umpire" in a Manatee County complaint. The validity of a man's story of a screech owl that attacked residents sounded questionable. When he arrived, however, Rogers found the evidence he needed: scratch marks on the man's bald head.

▷ Officer Rick Sloan in Sarasota County is no stranger to nuisance-wildlife complaints either. Sloan was removing a pygmy rattlesnake left in a vacated apartment when the irritated reptile struck Sloan on the hand. He examined the area of the strike but found no puncture marks. Much to Sloan's relief, the snake's mouth was packed full of aquarium gravel, and its fangs had failed to extend into striking position.

▷ In Gainesville, Officer John Duncan responded to a late-night call from a woman who was trapped inside her house by a bear that would not let her out. The "bear" turned out to be a black cow nibbling on the nasturtiums by the doorstep.

Later that month, in nearby Micanopy, Duncan had to calm a lady who was angry because a deer came into her yard. Her dog charged the deer, which turned on the dog and chased it under a truck. When Duncan arrived, the deer had left, but Rover still wouldn't come out.

▷ A visitor to the Alachua County Fair reported a giraffe that he thought was improperly caged. He thought the giraffe's quarters were cramped because he heard it banging its legs against the wall of its cage. Capt. Barry Cook investigated and determined that the cage was adequate. The giraffe wasn't cramped, it just had a craving for sugar. Living a life on the fair circuit, the giraffe had developed a taste for cotton candy. Whenever a fairgoer with the sticky stuff passed by, the giraffe made its wishes known by kicking at the walls of its cage.

▷ A Georgia resident initiated his own alligator-relocation program while vacationing in Panama City. According to the man's statement, he forcibly dragged a 5-foot alligator 100 feet up the beach to his motel room. "Apparently," the report read, "the gator didn't approve of its new surroundings and attached itself to the subject's right hand." To add insult to injury, Officer Buck Higman charged him with illegal possession of an alligator.

▷ Lastly, here's proof that some people just can't separate themselves from their work. In their radio communications, officers are always speaking in code numbers and call signs. An unnamed wildlife officer from the Panhandle sat down to lunch with his family. All eyes opened and turned to the man of the household as he finished his premeal prayer with "KA2486." Surely the Great Dispatcher was tuned to the same frequency.

You don't need the wisdom of Solomon to realize that as long as you're spending one-third of your pre-retirement adult life at work, you might as well have a job you enjoy. After all, who applies for a job thinking, "Gee I'd be perfectly miserable doing this. I hope they hire me"?

Most wildlife officers like the choice they've made. They get to put in their 40 hours a week outdoors, close to wildlife and away from rush-hour traffic and ringing telephones. Besides, when they get home, they're likely to have a good answer to that age-old question, "How was your day?"

Scott Ball enjoys his job as FLORIDA WILDLIFE's assistant editor but wouldn't turn down the opportunity to chase someone, even a naked man, in a helicopter.

Delicate Balance

Species: Atlantic sturgeon (*Acipenser oxyrhynchus*)
Florida Status: Species of Special Concern
Federal Status: Under review for listing

One of two species of sturgeon inhabiting Florida waters, Atlantic sturgeon are primitive in appearance, reflecting a fossil ancestry dating back 200 million years. Sturgeon are readily recognized by five lengthwise rows of bony plates, or scutes, along the body. A small suctorial mouth is located beneath the head, where four whisker-like sensory barbels also occur.

The Atlantic sturgeon is distinguished from the shortnose sturgeon by the location of the anal fin. In the Atlantic sturgeon the forward edge of the anal fin is behind the dorsal fin. In the shortnose sturgeon the front of the anal fin is directly below the front of the dorsal fin. As the name implies, the shortnose sturgeon has a shorter snout than the Atlantic sturgeon.

Two subspecies of the Atlantic sturgeon occur in Florida. An Atlantic Coast population ranges from Canada to the St. Johns River, and occasionally southward. In the Gulf of Mexico another population is distributed from the Mississippi River delta eastward to the Suwannee River, and sometimes down to Charlotte Harbor. The Florida range of the Atlantic sturgeon is thus discontinuous; territories of the two groups do not overlap around the peninsula. Expert knowledge is required to distinguish the two subspecies, as physical differences are very slight.

Atlantic sturgeon are anadromous, spending part of their lives in brackish or salt water and migrating into coastal rivers to reproduce. In Florida waters they do not reach reproductive maturity until they are 9 to 12 years of age or older. In the Suwannee River, they spawn from March to May. Female sturgeon may produce three million or more eggs. Bottom-living insects, crustaceans, mollusks, worms and sometimes small fish comprise the principal food items. Atlantic sturgeon may live as long as 60 years and may reach lengths of 14 feet and weights of 800 pounds or more.

Sturgeon were once abundant in Florida and elsewhere within their range. However, in the late 19th and early 20th centuries they were extensively harvested for their edible flesh and roe, which was made into valuable caviar. Overfishing, damming of rivers used for reproduction and general water quality degradation caused dramatic declines in sturgeon populations. Sturgeon are especially vulnerable to exploitation and habitat changes because of the long time required to reach reproductive maturity and their habit of congregating in rivers to reproduce. Today Atlantic sturgeon are not common in Florida rivers although a healthy population exists in the Suwannee River and possibly the Choctawhatchee River. Other streams harboring lesser populations include the Escambia, Yellow, Apalachicola, St. Marys and St. Johns rivers.

In Florida the Atlantic sturgeon is classified as a species of special concern, and the U. S. Fish and Wildlife Service is considering threatened species status for the Gulf of Mexico subspecies. Efforts are underway by researchers from the U.S. Fish and Wildlife Service and University of Florida to develop artificial reproduction techniques and to use the young fish to enhance native populations (see article, page 29). Maintenance of high-quality, free-flowing rivers and harvest regulations will be required to preserve this unique fish.

— Gray Bass
Division of Fisheries

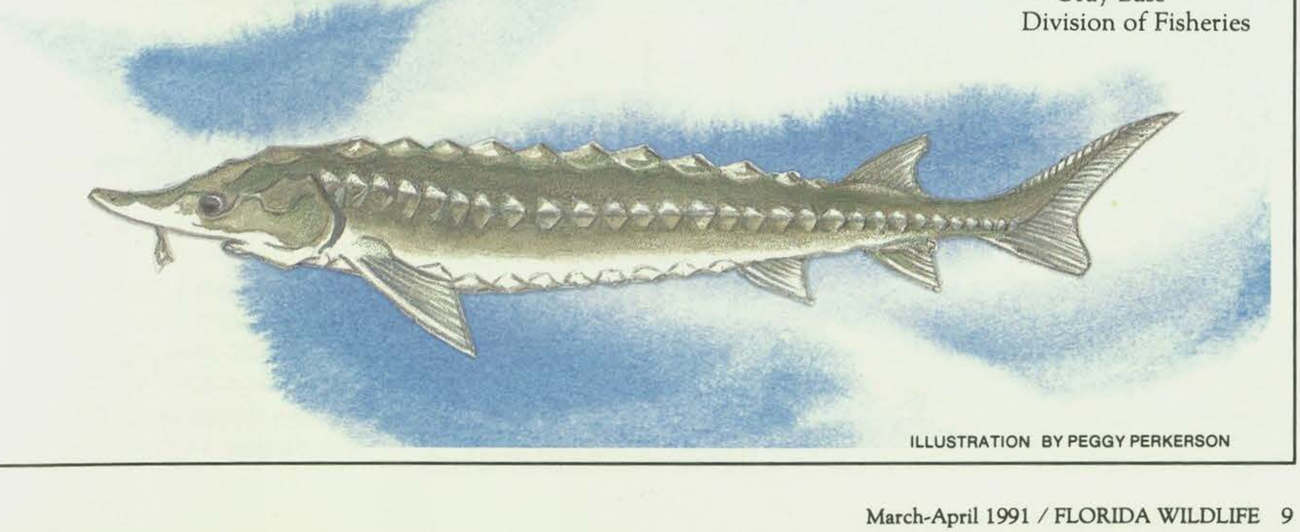


ILLUSTRATION BY PEGGY PERKERSON

LAKE OKEECHOBEE

Florida's "Big Water"

By Lt. Jim Huffstodt

Lake Okeechobee, Florida's largest body of fresh water, is the environmental keystone of this state's vital water system. Mankind's most inspired creations, whether the architectural beauty of a Medieval cathedral or the functional aerodynamics of the space shuttle, pale in comparison to nature's grand design.

But Florida's complex water system has been altered drastically by man. South Florida was once a rugged, untamed frontier, where fresh water coursed naturally through the Kissimmee River to Lake Okeechobee and into the grassy waters of the Everglades. Many describe the lake as "the liquid heart of the Everglades."

Life-giver to an array of fish and wildlife, the lake is the primary water source for millions of South Floridians. Okeechobee also irrigates thousands of acres of productive farmland.

Indians accurately dubbed it the "Big Water." The 730-square-mile lake is second in size only to Lake Michigan among freshwater lakes within the borders of the United States. In Florida, the next largest lake is 46,000-acre Lake George — roughly one-tenth the size of Okeechobee.

Relatively shallow, the vast lake is dependent on rainfall for replenishment. Although Florida's annual precipitation may amount to 40-65 inches, most falls in the summer, when the lake and reservoirs cannot hold the quantity.

The great lake is many things to many people. Sport anglers know it as a tremendous repository of speckled perch, largemouth bass and panfish. With justified pride, the town of Okeechobee, on the lake's northern end, boasts itself as the "speck" capital of the nation. Sport fishermen from all over North America make annual pilgrimages to Lake Okeechobee. They support a $22-million-a-year industry.

When a duck hunter thinks of Lake Okeechobee, he envisions a great raft of ducks floating in the shallows or gliding above in the perfect blue Florida sky. Each fall, approximately 300,000 waterfowl congregate in the lake's vast marshes. The water comes alive with the cry of ring-necks, blue-winged teal, Florida ducks, fulvous whistling-ducks, coots and lesser scaups.

Reminders of the dim age of the dinosaurs, alligators patrol these waters. Biologists believe there may be more than 12,000 here — enough to support a limited hunting season.

Only a small fraction of Okeechobee's large gator population has been harvested by permitted hunters since alligator hunting was reinstated in selected waters three years ago. Nevertheless, alligators represent a sizable economic boon for lucky hunters who draw a Lake Okeechobee permit. Quality hides have brought prices of $50 per foot, with meat going for $5 or more per pound.

During the evening, Okeechobee's great marshes echo with the music of thousands of frogs. Airboats fly across the lake's broad surface as "froggers" gig their prey with 10-foot-long spears. A frogger with a good eye and steady hand can pile up 40-50 pounds of frog legs in one night.

Conservationists across the world are familiar with Lake Okeechobee's treasure of interesting, rare creatures. The marshes are home for numerous wading birds and the endangered snail kites that feed on the apple snails clinging to the tall saw grass. Raptors nest in pine trees on the south side of the lake. Wood storks, or "iron heads," feed around the perimeter of the lake, sharing its bounty as they have for countless centuries.

Commercial fishermen make their hard living on these same waters. They bait 5,000-hook lines in the pre-dawn darkness and devote the remainder of the day to tending lines, pulling in and cleaning their catch. Sometimes it's a 16-hour day, and the harvest can be 2,000 pounds of catfish for tables across the land. This is a challenging way of life for a special breed who feel at home in the wide loneliness of the lake in the splendor of a rising sun.

At the opposite end of the spectrum are those who depend on these waters daily yet have never seen the sun rise or set on its broad waters. This is the majority — the nearly 5 million residents of metropolitan South Florida. Every time they wash a car or turn on a water tap they are indebted to the lake for its precious "liquid gold."

So, too, are the citrus groves and sugar cane fields that lie south of Lake Okeechobee in the drained vastness of the Everglades Agricultural Area. Each year growers draw on the lake to water their crops sprouting out of the deep, rich muck. The $1.5-billion-a-year commercial farm complex is another gift of the lake.

Nature created this wonder we call Lake Okeechobee. But, for the past century, man, in his clumsy way, has attempted to improve upon the great design. Some efforts met with disaster, as the answer to one

DAVID FOX

problem became the cause of another.

Engineers once saw Lake Okeechobee as a force to be tamed. In 1913, they began building a web of dikes and structures designed for flood control and irrigation.

These structures proved ineffective in protecting area residents from the disastrous effects of hurricanes in 1922, '24, '26 and '28. The 1926 hurricane swept a wall of water through a 5-foot-high dike around the southern perimeter of the lake, killing more than 400 people in Moore Haven. The 1928 storm similarly killed some 2,000 people residing along the southeastern perimeter. It remains the second-highest number of hurricane-related deaths in U.S. history.

"Men and women were caught and drowned out of overturned boats, in unroofed houses, among uprooted trees," wrote Marjorie Stoneman Douglas in *Everglades, River of Grass.* ▷

TIM TUCKER

"Life was smashed under tons of water in the night, choked with mud, crushed under the weight of blown debris," Douglas wrote. "When the light came back to the lake there was one wilderness of water everywhere, in which the dead lay like logs...The living had gray, vacant faces."

The lake had turned killer, and man sought to chain that power forever. Work began in 1930 on the Herbert Hoover Dike. This ring of earth and concrete structures stands today as a shield between the water and the tiny communities on the lake's periphery.

The growing environmental movement of the past two decades allowed people to look at Lake Okeechobee from a different vantage point. Concerned individuals such as Nat Reed and the late Arthur Marshall believed that man was asking too much from the lake. Sportsmen feared that man's tinkering might kill the lake.

Concern mushroomed with the great algae bloom of 1986. A green scum covered approximately 120 square miles of the lake; thousands of oxygen-starved snails died. Many saw this as a major symptom of a disease that eventually might choke the life out of the "Big Water."

Eutrophication is the culprit. This is a natural process that occurs as increased levels of nutrients flow into the lake from the developed floodplain. It has been at work in Lake Okeechobee for thousands of years. But few question that the process is being greatly accelerated as we add excess nutrients to the mix.

The end result will be a condition in which the water has a low dissolved-oxygen level and algae and undesirable plants flourish. Lakes with a high eutrophic level have poor or non-existent sport fish populations. Gar, bowfin and other undesirable fish survive in oxygen-poor water. Sport fish don't.

How far along in this downward spiral is Lake Okeechobee? Nobody knows for sure, but many believe continued reductions in treated sewage and agricultural run-off are the key to saving the resource.

Is the lake beyond the point of no return, or are conservationists overreacting? That debate continues. To date, the fishery resource has not been greatly affected. Fisheries biologists with the Florida Game and Fresh Water Fish Commission see little adverse impact.

Don Fox, the Commission's chief fisheries biologist for Lake Okeechobee, said his data do not indicate a negative trend. Yet.

"We've not documented any downward trend in fish species on the upper end of the food chain," Fox said. "Sport fish still constitute 60 percent of the fish population in the lake."

At the same time, Fox cautions that the lake could suddenly turn an "environmental corner" with very little warning.

"The algae blooms and an increase in lower life forms suggest that the lake is moving in that direction," Fox said. "But no one knows when we might reach a point of no return. That's why it makes sense to adopt a worst-case scenario so we don't see another Lake Apopka or Lake Erie develop."

Others within the conservation community are more alarmist. There is, however, little disagreement on one salient point: Lake Okeechobee is Florida's environmental treasure. Its survival depends on the decisions and actions taken by man in this, the last decade of the 20th century.

Lt. Jim Huffstodt is the public information specialist in the Commission's Everglades Region.

The endangered wood stork feeds around the perimeter of the lake. Snail kites, also endangered, feed on apple snails (inset).

LYNN STONE

CHARLIE HEIDECKER

LAKE OKEECHOBEE

Commercial Fishery Management

By Darrell L. Scovell

Old-timers called them "Okeechobee salmon," and during the early 1900s, between 375 and 1,200 barrels of "salmon" were shipped from Okeechobee City each week. No matter what name you use, a barrel of catfish weighed approximately 200 pounds, so one week's shipment ranged between 75,000 and 240,000 pounds.

That was the heyday for commercial fishing on Lake Okeechobee, according to Lawrence E. Will's book, *Okeechobee Catfishing*. Newspaper reports of that era confirm that up to 6.5 million pounds of catfish, bream, black crappie, black bass and mullet were harvested annually from Lake Okeechobee. The lake's commercial fishery employed as many as 1,500 fishermen who worked out of 40 to 50 fish camps established on the shores of the big lake.

At first glance, today's commercial fishery on Lake Okeechobee still resembles those early days described by Will, when the surrounding area was first settled. Commercial fishermen still use trotlines (single horizontal lines to which hundreds of vertical lines with hooks are attached), wire catfish traps and haul seines (up to 1,600 yards in length with a crew of three to five and an equal number of boats). Catfish are the most harvested species, and commercial haul-seiners also may take certain game fishes. However, the lake's commercial fisheries now are highly regulated and carefully studied by Florida Game and Fresh Water Fish Commission law enforcement personnel and fisheries scientists. Present-day commercial fishing is far from the laissez-faire activity it was around the turn of the century.

Today, Okeechobee's commercial fishery management is based on a study that determined that commercial harvest of certain game fishes and use of haul seines and trawls would not harm sport fishing. Commission fisheries scientists believed that, because of Lake Okeechobee's immense size and resources, increased commercial fishing would yield two benefits. It would enhance the economy of surrounding communities, and it could improve the fish populations. The primary objective was to take advantage of fishery resources that otherwise would not be used. Other potential benefits included removal of nutrients from the lake and improved sport fishing.

Not everyone agreed with these theories; the decision to implement the program was highly controversial. Beginning in the 1920s and continuing into the '30s, '40s, and early '50s, regulations were passed prohibiting commercial harvest and sale of game fishes, including black bass, black crappie, bluegill and redear sunfish. Over the years, all commercial gear except trotlines and wire catfish traps were banned. These regulations, which banned harvest of game fish and severely limited use of commercial gear, were passed largely because of the rising tide of fishermen using Florida's fresh waters for recreational activities. Traditionally, many believed that commercial operations on Lake Okeechobee were detrimental to game fish populations and limited a recreational fisherman's ability to successfully catch sport fish.

Organized recreational fishing ▷

WILLIAM A. GREER

groups were hesitant at first but went along with the Commission's experiment when assured that the program, based on sound management principles, would be highly regulated and strictly enforced. As a result, commercial harvest and sale of freshwater game fishes (except black bass and chain and redfin pickerel) and use of haul seines and trawls were re-authorized on Lake Okeechobee in October 1976. Any game fish (primarily black crappie, bluegill and redear sunfish) taken were required to be identified prior to sale with one-time-use metal fish tags issued by the Commission. Initially, a maximum of 200 trawl permits and 40 haul seine permits were available for use on the lake. Haul seines and trawls had to be operated one mile lakeward of emergent aquatic vegetation to avoid popular sport fishing areas.

In 1981, a severe drought in South Florida caused the water level in Lake Okeechobee to drop to a record low. The entire littoral zone (25 percent of the lake) was dewatered, forcing the lake's fish populations into open water. Because of concern that the lake's fish populations might be over-harvested, the Commission temporarily suspended the use of trawls and haul seines and the harvest and sale of game fishes in May 1981.

This first period of expanded commercial harvest (October 1976 through May 1981) yielded 33.1 million pounds of fish from Lake Okeechobee. Harvest by trawls and haul seines comprised 65 percent of this total. Trotlines and wire traps made up the remaining 35 percent. Forty-two percent of total harvest was game fishes.

In November 1982, the Commission re-authorized harvest and sale of certain game fishes (primarily bluegill and redear sunfish) in Lake Okeechobee by 10 licensed and permitted haul seines. Trawl permits and commercial harvest and sale of black crappie were not re-authorized. As previously required, all legally harvested game fishes were tagged prior to sale, and haul seines had to be at least one mile from emergent vegetation.

Commercial fishermen took 37.8 million pounds of Lake Okeechobee fish from November 1982 through June 1990. Haul seines took 41 percent, and 17 percent of the lake's total commercial harvest was game fishes.

The average annual commercial harvest increased from 2.0 million pounds prior to October 1976 to 5.3 million pounds during this period. From October 1976 through June 1990, Lake Okeechobee's commercial harvest totaled 74.1 millon pounds.

Studies conducted by Commission fisheries biologists show commercial fishing on the lake has not had a detrimental impact on recreational activity. Data from on-the-water surveys of as many as 12,000 recreational fishermen per year show effort and harvest of all game fishes have increased (in some cases more than doubled) during the 14 years of liberalized commercial fishing. These same surveys also show sport fishing success has not declined.

An economic study conducted for the Commission and the Department of Environmental Regulation in 1987 estimated that over 200 people were employed in the lake's commercial fishing industry in 1986. The economic impact of Lake Okeechobee's commercial fisheries to communities such as Clewiston, Okeechobee City and Belle Glade totaled $6.2 million.

Removal of fish during this 14-year period also decreased the amount of nutrients in the lake. Excess nutrients can cause over-enrichment, depleting the water's oxygen supply and possibly resulting in fish kills. The two most problematic nutrients affecting water quality in Lake Okeechobee are nitrogen and phosphorus. Fish such as catfish and bluegills are about 2 to 3 percent nitrogen and one-half to 1 percent phosphorus. However, because large-scale commercial fishing in Lake Okeechobee has removed 5.3 million pounds of fish annually, tons of nitrogen and phosphorus have been removed as well.

From October 1976 through June 1990, almost 900 tons of nitrogen and 265 tons of phosphorus were removed from the lake in the commercial harvest. Commercial harvest alone will not save the lake from over-enrichment as the area around Lake Okeechobee continues to develop. But it has been shown to be one of the few cost-effective methods of phosphorus removal. Coupled with other programs to limit the amount of nutrients coming into the lake, commercial fishing can make a meaningful contribution toward solving the lake's problems.

Since 1976, a large-scale commercial fishery has existed on Lake Okeechobee. Implementation of this commercial fishery was based on scientific fisheries management principles. The lake's fish populations are carefully monitored, and commercial fishing operations are highly regulated. Commercial fishermen have been harvesting an average of 5.2 million pounds of fish annually from the lake, which approaches the 6.5 million pounds reportedly harvested during the "heyday" of the early 1900s. Over 11 tons of nitrogen and 3.5 tons of phosphorus leave the lake annually via commercial harvest.

Recreational fishing also appears to have thrived as estimates of harvest and effort for black bass, black crappie, bluegill and redear sunfish continue to climb with no decline in average success. During the late '70s and through the '80s, it has been shown that large-scale commercial fishing, if properly managed, can successfully coexist with an excellent sport fishery to the benefit of the lake's fish populations and the local economies surrounding Lake Okeechobee.

Who knows, someday some other author, writing of what he has seen and heard about Lake Okeechobee, may describe the period from 1976 into the 1990s as the "heyday" of commercial fishing on Lake Okeechobee.

Darrell L. Scovell is section leader of the Commercial Fisheries Section of the Commission's Division of Fisheries.

LAKE OKEECHOBEE

Black Crappie Fishery

By Donald D. Fox,

Lake Okeechobee-Kissimmee River Fisheries Project Leader

It doesn't take long for a visitor to figure out that lots of folks in Okeechobee like to fish. Although Lake Okeechobee is home to some excellent bass fishing, most people come in search of black crappie, known locally as "speckled perch" or "specks." Colorful signs tout Lake Okeechobee as the "Speckled Perch Capital of the World." Each year, on the second weekend in March, the Chamber of Commerce sponsors the "Speckled Perch Festival," complete with parade, fishing contest, arts and crafts fair and the crowning of "Miss Speckled Perch" and her court.

So just how popular is this scrappy, little panfish? During the 1989-90 winter-spring season, "perch-jerking" anglers spent over 600,000 hours harvesting nearly two million black crappie. In addition, anglers reported releasing over 300,000 crappie that weren't large enough for the stringer. The success rate of 3.11 fish per hour is the highest documented for Lake Okeechobee speck fishermen and probably one of the highest reported anywhere.

Black crappie fishing not only functions as an important recreational and social activity, its economic contribution is significant as well. An economic study determined that residents of counties in the immediate lake area spent $14.07 per black crappie fishing trip, while tourists and non-lake-area residents spent $48.56 each trip. Overall, Lake Okeechobee anglers spend an estimated $3.4 million annually fishing for black crappie. This translates into an annual economic impact of $9.3 million.

Black crappie fishing always has been a significant part of the recreational fishery of Lake Okeechobee. However, in recent years its prevalence has increased dramatically. A creel survey conducted from 1948 to 1950 indicated angling for black crappie represented only 10 percent of the total lakewide fishing effort. By ▷

TIM TUCKER

1977-78 crappie fishing represented 38 percent of the annual total and 42 percent during winter and spring. Statistics for the 1988-89 winter-spring season revealed 55 percent of the total fishing effort was directed toward black crappie, and during the 1989-90 season that figure rose to 63 percent. Black crappie continue to be the most sought-after sport fish on Lake Okeechobee.

To get a handle on the fishery and the fish population, biologists have been collecting samples continuously since 1972. Because crappie congregate in open water for much of the year, scientists use trawls to gather data on abundance, growth, and age.

Trawl catch rates indicate increasing abundance of black crappie in Lake Okeechobee. From 1974 through 1984, catch rates in January trawl samples averaged over five fish per minute. By contrast, from 1985 through 1990, catch rates have averaged over 18 fish per minute. This dramatic increase is the result of successively strong year classes spawned from 1983 through 1986.

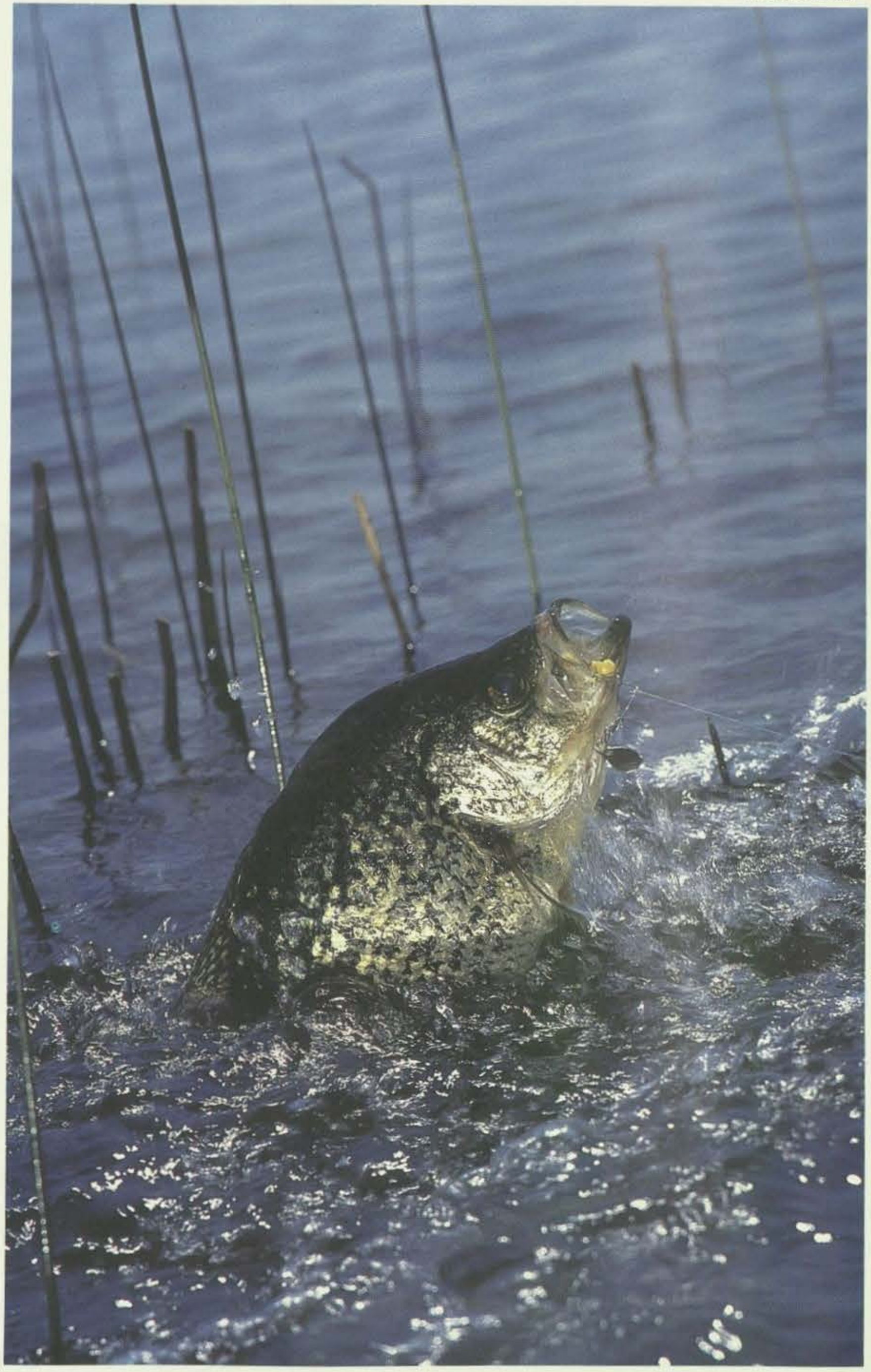
The increased density of black crappie in Lake Okeechobee has been evident in the sport harvest. Most fishing occurs during winter and spring, when approximately 70 percent of the total annual effort takes place and 75 percent of the specks are harvested. Creel surveys conducted since 1977-78 have shown a dramatic increase in the stature of this fishery. During the 1989-90 winter-spring season, new records were set for angling effort, harvest and success rate for the black crappie fishery.

The phenomenal 1989-90 season is not solely attributable to density of the black crappie population in Lake Okeechobee. Water releases from the upper Kissimmee basin into the Kissimmee River and subsequently Lake Okeechobee coincided with black crappie spawning activities from January through early March. The increased river flow and low lake level resulted in large numbers of black crappie gathering in the mouth of the Kissimmee River. Hundreds of boat fishermen could be seen upstream and downstream of the bridge. On a single day in February 506 boats were counted downstream of the bridge alone. Fishermen lined both banks of the river, and in some places they were literally shoulder to shoulder.

Compared to creel statistics from previous seasons, the 1989-90 results indicate a 113-percent increase in crappie-angling effort over 1983-84 estimates and 325 percent above 1977-78 estimates. The harvest has kept pace with the dramatic increase in fishing effort. The 1989-90 record harvest was 234 percent above 1983-84 harvest estimates and an amazing 959 percent above the 1977-78 season harvest. Angler success rates have followed a similar upward trend.

Although the fishery has increased steadily, the black crappie population has been anything but static. In the early '70s scientists determined that the black crappie population in Lake Okeechobee was stunted. Crappie took three years to reach 8 inches, the minimum

DOUG STAMM



acceptable length for most anglers. Even with a lake as productive as Okeechobee, black crappie growth had stagnated, and fish were stockpiling at a length of about 9 inches.

In an attempt to stimulate growth rates, commercial fishermen were permitted to harvest black crappie from 1976 to 1981 (see commercial fishing article, page 13). Reducing the density of speckled perch resulted in enhanced growth rates, and crappie began to reach 9 inches by age 2. Three-year-old fish averaged almost 11 inches.

However, a dramatic decline in the lake's water level during 1981 resulted in the fish population becoming more susceptible to harvest. A decline in sport fishing success the previous winter was attributed to a combination of excessive commercial harvest by wire traps and trawls, low water levels and a weak 1979 year class. As a result, the harvest and sale of game fish and the use of trawls and haul seines were temporarily suspended. Following suspension of commercial harvest, black crappie growth declined and fish stockpiled as before. A major factor in this decline is high black crappie density from the strong year classes produced from 1983 through 1986.

In 1989 trawl samples, the abundance of threadfin shad, the principal speckled perch food item, increased three-fold. Additionally shad were smaller and more readily available to small crappie. The increased food supply for black crappie resulted in a resurgence of growth rates in the past two years.

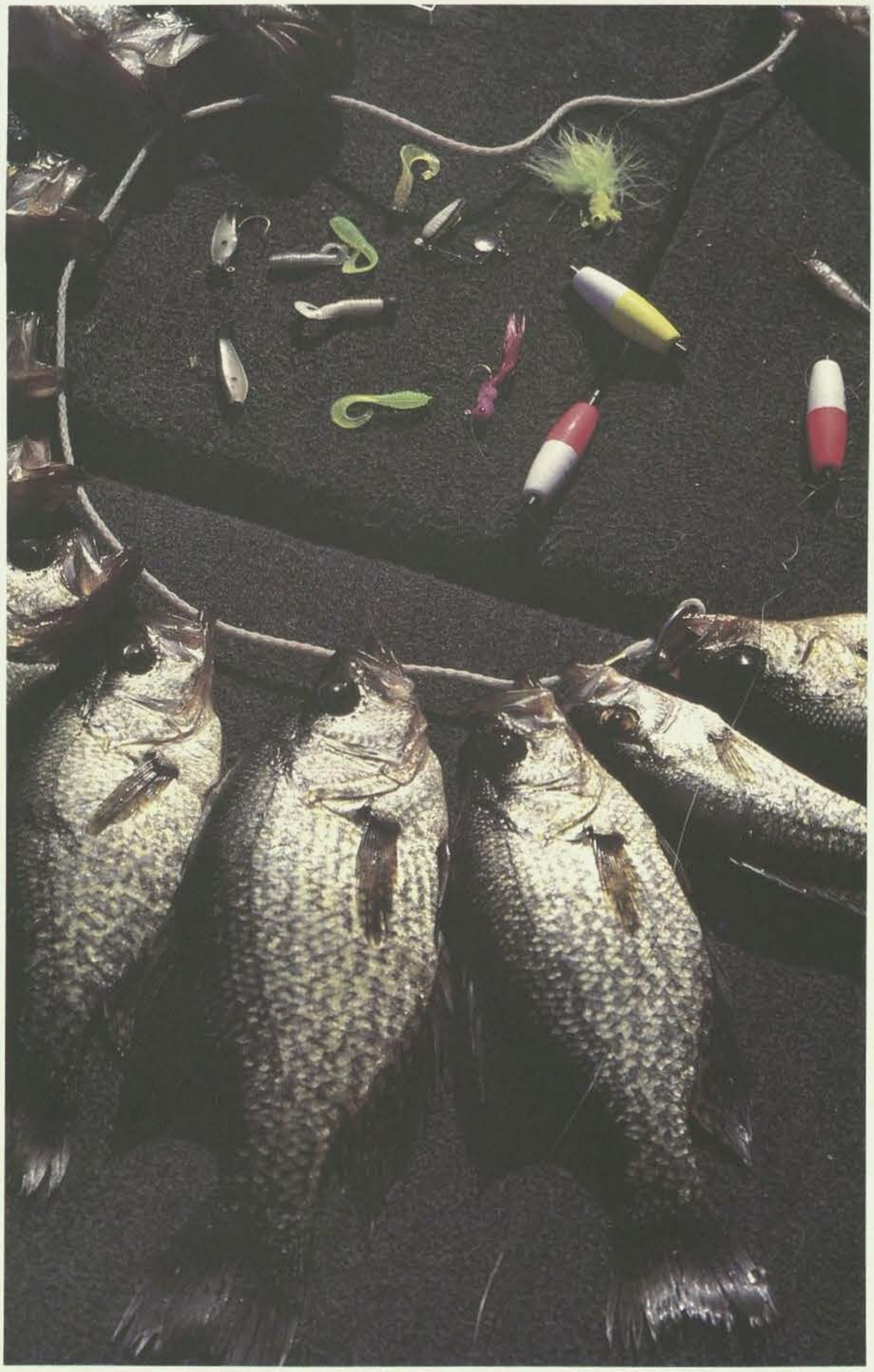
Normally very cyclic, black crappie populations typically will be dominated by a single strong year class, which occurs every two to five years. Trawl samples in January 1990 indicated seven year classes present in the Lake Okeechobee population. However, few fish beyond age 5 were collected. This is not surprising, as crappie are usually a short-lived species.

In Lake Okeechobee, water level and abundance of sexually mature adults determine year class strength (the relative abundance of an age group). When water levels exceed an elevation of 13.4 feet above mean sea level during the January through March spawning period, strong black crappie year classes have resulted. This is probably due to the inundation of marsh vegetation which leads to improved survival for newly spawned specks.

The majority of black crappie taken by anglers are ages 2-5. Over 70 percent of the annual speck harvest ranges from 9 to 11 inches. From 1973 through 1989, anglers kept no more than 4 percent of crappie less than 8 inches. Even in the worst black crappie fishing season on record (1980-81), only 2.8 percent of the crappie kept by anglers were less than 8 inches long.

The quality of black crappie fishing in Lake Okeechobee is not equitable throughout the system. The primary black crappie fishing areas on Lake Okeechobee are Fisheating Creek Bay in the western lake area, near the mouth of the Kissimmee River and south of the structures at Taylor Creek and Nubbin Slough in the north lake ▷

TOM EVANS



TIM TUCKER

JAMES T. FARRIOR

area. These areas are sources of major inflow. Typically, the north lake area is most productive for black crappie and receives the highest angling pressure. In the 1989-90 winter-spring season, anglers fishing the north lake area accounted for nearly 75 percent of lakewide fishing effort for black crappie and 81 percent of the estimated lakewide crappie harvest. Earlier creel surveys in 1955 and 1967 on Lake Okeechobee also reported that black crappie fishing was highly localized and centered in the Kissimmee River and Taylor Creek areas.

Recent trawl samples in open water areas of Lake Okeechobee confirm black crappie are not randomly distributed within the system. Instead, they are associated with turbid, deep waters common in the north lake area. Anglers have been quick to recognize this pattern.

The composition of black crappie anglers on Lake Okeechobee has changed little through the decades. During winter, nearly equal numbers of tourists and residents fish the lake. From March through May, residents outnumber tourists nearly 3 to 1, as many winter residents return north in response to warmer weather. However, by returning home early, our northern visitors are missing some of the year's best fishing. Typically, black crappie anglers catch the most fish during March and April.

Night fishing, a little-recognized component of black crappie angling on Lake Okeechobee, is becoming more popular. There always has been a contingent of diehards who fished for black crappie at night. However, with the advent of more comfortable boats, enhanced portable lighting and compact generators, night fishing for black crappie is attracting more anglers. During a special boating safety detail in February 1990, wildlife officers reported seeing approximately 300 boats in the Kissimmee River area of Lake Okeechobee on a single evening, each with at least two anglers.

To date, no comprehensive assessment of night fishing for black crappie has been made. However, studies comparing day and night angling reveal that night harvest and success rates may double daytime figures. In February 1990, when black crappie were concentrated in the Kissimmee River area due to high inflow, wildlife officers arrested three individuals with 540 black crappie, all caught during a single night's effort on cane poles baited with minnows. The daily bag limit for black crappie is 50 per person.

Future black crappie research in Lake Okeechobee will focus on further defining the physical, chemical and biological factors affecting reproduction and year-class strength as well as recruitment of this cyclic species. If night fishing pressure continues to expand, this component of the sport fishery may also need to be monitored.

Those who rely on the lake for a living and those who fish it for pleasure may not be interested in the specifics of what makes Lake Okeechobee the "Speckled Perch Capital of the World." They just want to make sure it retains that title.

LAKE OKEECHOBEE

Structure Fishing

Text and Photographs by Tim Tucker

The legions of anglers who fish Lake Okeechobee concentrate on the thousands of acres of lake marsh and grass lines that have made the Big O famous.

But there's another form of fishing on Okeechobee that's provided some of the most consistent year-round action available, particularly when the water is low (as in the past two years).

It's called structure fishing.

The Big O, a shallow, dishpan-shaped body of water, is considered a cover lake. But one secret to consistent success — particularly in times of slow fishing action — is fishing the holes and rock ledges scattered throughout the southeastern corner of Lake Okeechobee. It's a form of fishing that's foreign to 90 percent of the lake's avid anglers but consistently productive for those who have learned the art.

Renowned tournament pro Roland Martin and guide Lance Glaser are among the Okeechobee regulars who have taken time to learn the holes and drop-offs that produce excellent stringers of bass.

"A lot of people don't like to structure-fish on Okeechobee, but that's because they just don't know how to fish this kind of structure," said Glaser, who guides out of Slim's Fish Camp in Belle Glade. "Very few people even realize this kind of structure exists.

"When I first came down here, all I'd ever read about this lake was that you had to fish the weeds. Lake Okeechobee is a lake with no deep water and no structure. But these holes hold fish. It doesn't take much of a drop-off to hold fish.

"There's some fantastic structure fishing in this lake. When the water warms up every year, the fish come out of the shallow flats and head for the holes and drop-offs. And you can clobber fish when they're out there. You can catch them on bait, you can catch them on worms, topwater, crankbaits, everything.

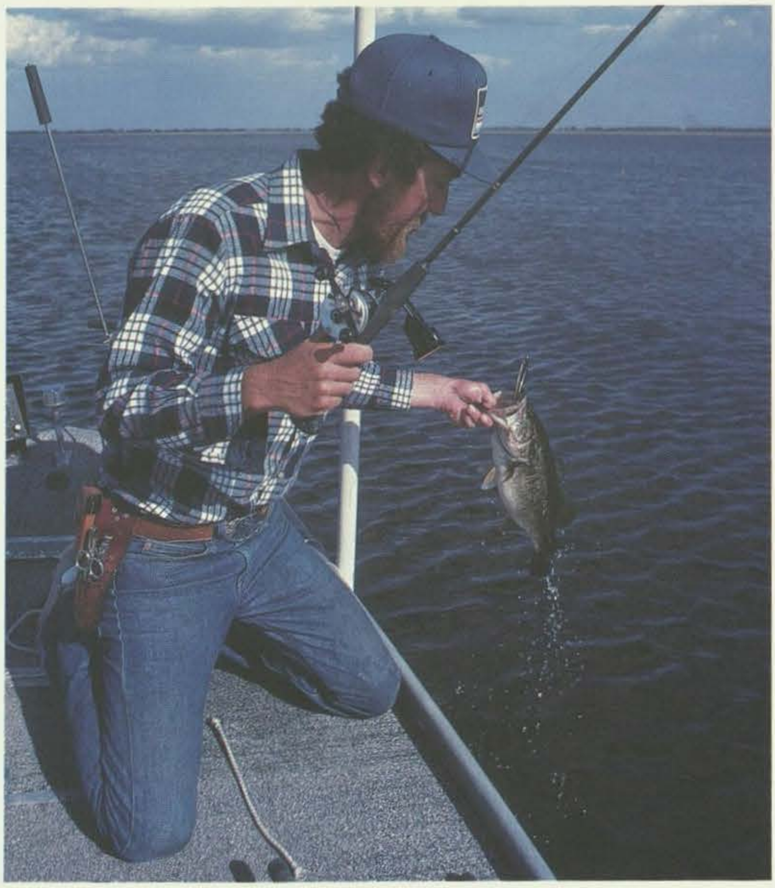
"I love it. It's probably my favorite way to fish this lake. I get excited just thinking about those fish being out there."

Martin, the all-time tournament king with 16 Bass Anglers Sportsman Society victories to his credit, demonstrated the wealth of untapped bass in these submerged structure areas during a national tournament a few years ago. As the tournament began, Martin took a completely different tack from his competitors who chose to hammer the grass lines. Martin headed to some open-water structure far offshore where he enjoyed enough solitude to catch 56 pounds of bass in three days (only a dead-fish penalty kept him from winning).

That performance opened more than a few minds to Okeechobee's unmolested structure bass.

Very few aspects of bass fishing are predictable, but Glaser insisted that the rock technique is extremely reliable throughout the year.

"This rock fishing is super reliable because, when the fish are not schooling up and chasing bait, they're tight to the ledges," Glaser ▷



Roland Martin combines map study with a depthfinder to pinpoint productive underwater spots.

explained. "And you can catch them there. That's what I like about fishing the holes."

According to Glaser's records, these holes and rock piles seem to hold big bass as well.

"I've caught as many big fish out there as I have anywhere else in the lake," he said. "I catch lots of big fish in these holes because it's a natural place for them to go.

"I truly believe that if ever a record bass is caught in Lake Okeechobee, that's where it's going to be caught. It's the ideal place to go, and very few people fish out there because there's only a handful who know how to fish it. Most people don't believe these holes even exist, but there's plenty of them."

Through more than a decade of guiding on Lake Okeechobee, Glaser has learned to utilize 14 channels, ledges, holes, drop-offs and rock piles.

"The hardest thing about this kind of fishing is finding those holes," he explained. "What you've got to do is run out on the open lake with a general knowledge of where they are. Most of them are between the tip of Kreamer and the tip of Pahokee, off the Norman Channel about a mile out.

"With that general location in mind, you have to watch the flasher in the dashboard as you run," Glaser said. "You'll be running along in 8 feet of water when, all of a sudden, you find you're in 12 feet of water. Now, it's time to stop the boat and fish that drop-off."

The easiest holes to locate, according to Glaser, are in the Pahokee and Norman channels. It's a simple matter of lining up one channel marker with the next and fishing that ledge on both sides of the channel. Some of the more productive holes in those channels were made when the dredging machines apparently turned around at the end of the channels, scooping out enormous bowls of rock in the process.

One of the best-known holes is called the Airport Hole, where a huge amount of rock was removed to build the dike around the lake. One of the most productive drop-offs is found between the Norman Channel and the tip of Bacom Point, which is noted on most quality maps.

Once you locate the holes, Glaser advises moving off into shallow water and casting into the deep sanctuaries of the drop-offs. Those who can't stand the sun for an entire day usually can piece together a decent limit in a few early and late hours of fishing. But if you plan to fish these holes throughout the day, be prepared for steady action.

In a stroke of genius, Martin borrowed a piece of marine equipment from his saltwater brethren to enhance his ability to relocate his best hidden structures which are so far offshore that landmarks are useless. He found that a loran navigational unit, used by saltwater guides and captains for years, is perfectly suited for this type of freshwater fishing.

The loran helps the user zero in on a spot time after time with amazing accuracy. By translating signals sent out from transmitters scattered across the country into navigational data, it has a minimum accuracy of 50 yards. Depending on the operator's experience, the loran can perform in the range of 50 feet or less. The loran helps anglers by providing such information as the direct compass course (indicating if you're veering off course to the right or left) and the distance from the programmed coordinates in nautical miles. It also computes the amount of time it should take to arrive at the desired location. A loud signal sounds once you are within a range of one-tenth to one mile of the target.

You can catch bass hiding in these offshore structures with a variety of artificial lures. Perhaps the best is a medium-running, slab-sided crankbait like a Rat-L-Trap. In addition to making noise as it comes through the water, the bait seems to trigger strikes as it ricochets off the rocks or ledges.

"A good general method is to reel that crankbait hard to get it to dive and then slow it down and reel it along easily," Glaser says. "Then, when you get to the ledges, work them over real slowly."

Glaser usually begins with topwater plugs early to entice the most active bass, then switches to a worm as the sun rises. But he is constantly looking for any surface activity that could signal bass chasing shad. By mixing up several lures, Glaser often keeps the fish actively feeding throughout the day.

"This type of structure fishing demands fairly light line," Glaser added. "I use 14-pound-test line, but I'll also go even lighter if the water clears. And in that clear water, 4-inch worms and small crankbaits also will work well."

During his tournament heroics, Martin used a unique approach to score the kind of catches that any angler would be proud to claim.

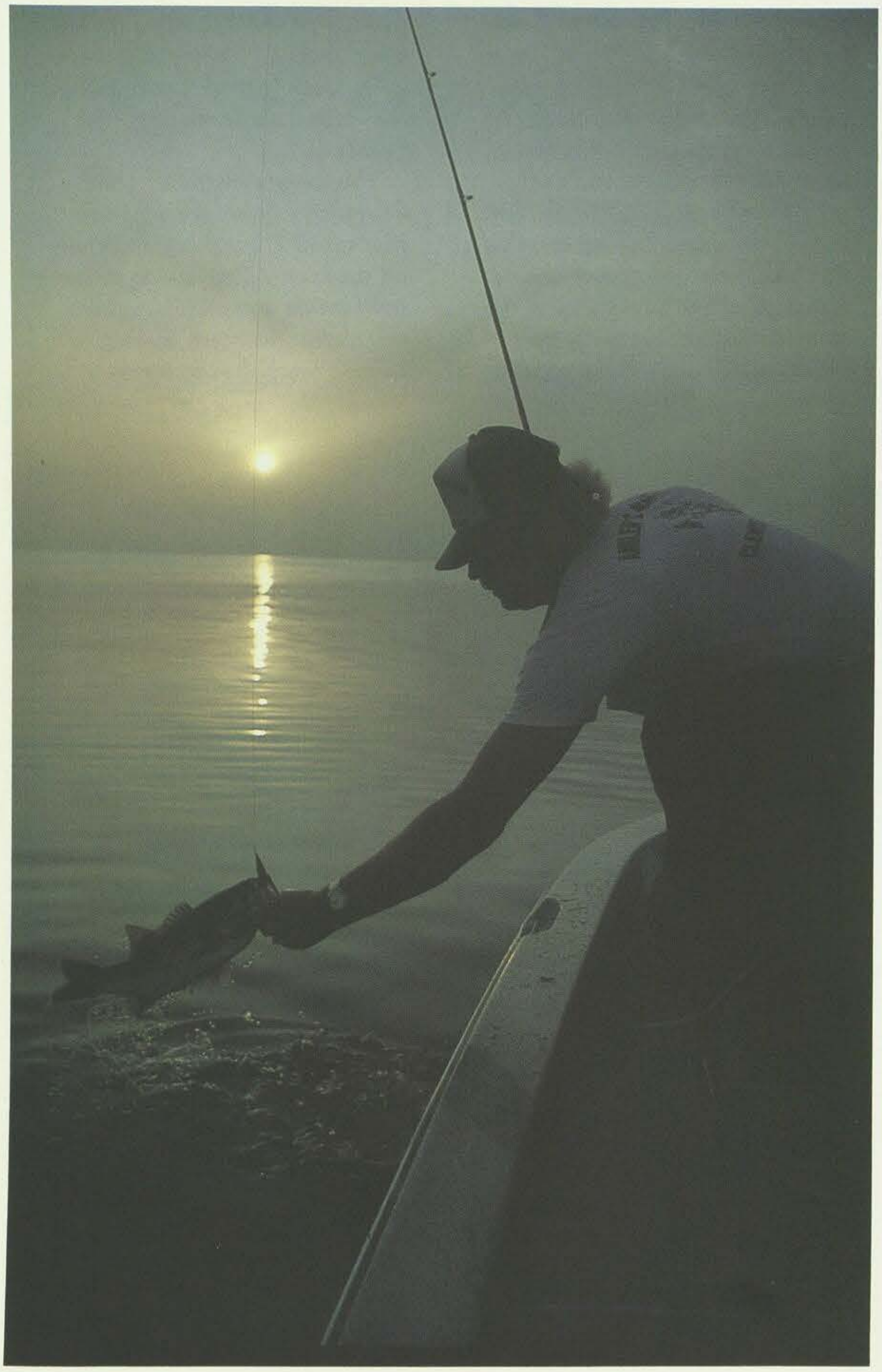
Fishing shallow, clear water, Martin was forced to make casts as long as 75 feet using light line (8-pound test). But the biggest difficulty came from attempting to set the hook on big bass from such distances. It was for that reason that Martin experimented with combining light line on heavy flipping and cranking rods — an unorthodox technique, to say the least.

But then, the entire art of structure fishing on Lake Okeechobee is unorthodox. Consider a story about one of the first customers Lance Glaser introduced to structure fishing.

The hardest thing about structure fishing is finding the channels, ledges, holes, drop-offs and rock piles. A crankbait seems to trigger strikes.

"We were running out in the lake when I stopped about two miles from the nearest grass," he recalled. "The first thing he asked was 'Did the motor quit?' When I told him what we were going to do, he told me I was crazy. But he went along with it."

His reluctance and skepticism began to ease when Glaser boated a bass that weighed 9½ pounds. And it disappeared completely when the customer went on to land four bass that topped the 5-pound mark, including a 10-pounder. ▷



Shiner Fishing

Open-water structure may offer the last frontier for Lake Okeechobee fishermen, but working the lake's famous weed lines with a live shiner is still one of the most popular methods of fishing.

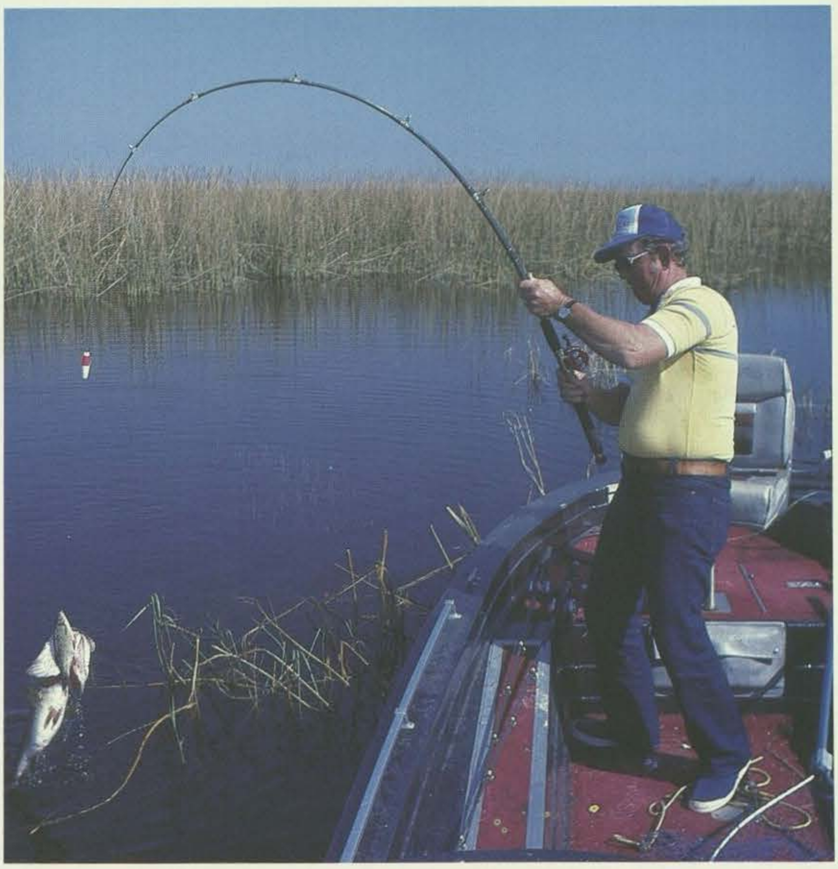
The golden shiner is considered the finest live bass bait known to man, the ticket to a trophy bass. And since it was introduced to the Big O around 1981, it has exploded in popularity.

"From December through April, 90 percent of our guided trips are shiner trips, so that should tell you how much things have changed," said Jim Wells, a long-time guide at Angler's Marina in Clewiston. "We shiner-fished 20 years ago, but it was something that never took off.

"Roland Martin is the one who started the shiner fishing craze on this lake. I can remember one or two trips where he absolutely destroyed the fish. He really surprised us. Of course, the type of shiner fishing we were doing was not like what he was doing. We were going out to the same old places and anchoring the boat, just throwing out a couple of shiners and waiting. He perfected it and made it work. And word spread like wildfire."

In addition to Martin, two other anglers share the credit for promoting shiner fishing on Lake Okeechobee. Wells and Lakeport guide Glen Hunter were among the earliest shiner-fishing pioneers.

The former owner of Twin Palms Fish Camp, Hunter was the first to sell shiners commercially on the lake. After talking to central Florida commercial shiner-collectors who were coming to Lake Okeechobee to get their supply, Hunter began testing the appeal of the abundant baitfish. Over the years, Hunter worked to perfect shiner-fishing techniques that produced some impressive trophy fish. As a result, Hunter's exploits have been reported in most major outdoor magazines.



TIM TUCKER

As local anglers learned more about the art of shiner fishing, the technique seemed to produce more trophy-status bass with each passing year. It has been so effective that many fishermen have wondered what impact shiner fishing has had on the big lake's bass population.

"In my opinion, it has not hurt fishing in general," Wells said. "But it definitely has hurt our big fish because it is a big-fish technique.

"But the thing that has helped in the past few years has been a new attitude toward releasing the big fish. I think we've restored a lot of the big fish and this has been something that has been a pleasure to watch. We're seeing more and more people keeping only one large fish to mount and releasing the rest.

"We've sort of created a monster with this shiner fishing, so it's up to us to educate the public about putting the big fish back. I hate to say this, but in '81 when we had the drought, we kept thousands of big fish from 8 to 12 pounds. I guess we thought they were going to last forever, but we know better now."

Tim Tucker is outdoors editor for the ***Palm Beach Post*** *newspaper and senior writer for several national magazines. His newest book is titled* ***Secrets of America's Best Bass Pros.*** *An autographed copy is available for $10.95 plus $2 postage and handling.*

Glen Hunter reveals his best fishing secrets in ***Advanced Shiner Fishing Techniques,*** *which sells for $11.95. Both books are available from T.T. Outdoor Productions Corp., Rt. 2, Box 177, Micanopy, FL 32667.*

LAKE OKEECHOBEE

Kissimmee River Restoration

Text and Photographs by Steven J. Miller

At one time, the Kissimmee was a meandering, lazy river flanked on either side by vast marshes with cattails, panic grass, pickerel weed and water lilies. It wound its way from Lake Kissimmee through central Florida spilling into Lake Okeechobee 98 serpentine miles to the south.

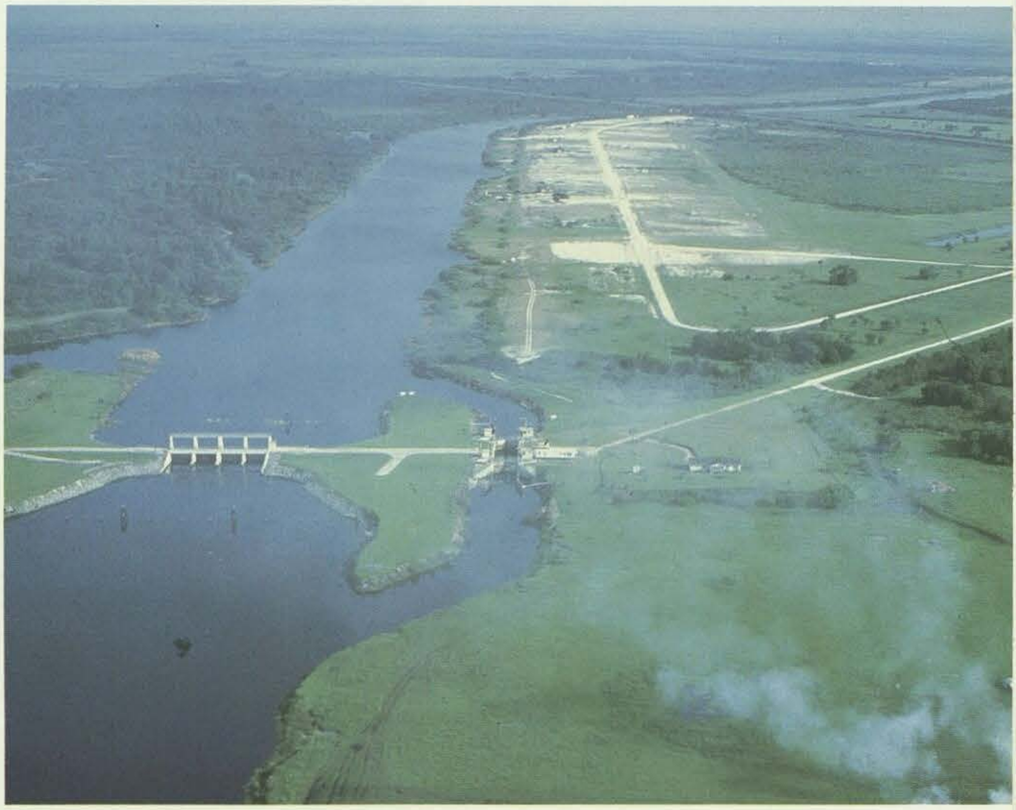
That was before the U.S. Army Corps of Engineers, in an effort to control seasonal flooding, channelized the river. Now, the once-meandering river is a straight, 52-mile ditch with the sterile subtitle "Canal C-38." While channelization prevented the river from spilling over its banks, it destroyed valuable wetlands, wiping out fish and wildlife resources. Marsh became cow pasture, and nutrients, with no wetlands to absorb them, flushed straight into Lake Okeechobee.

However, the environmental pendulum has swung back the other way, and there is renewed hope that the Kissimmee River will someday resume its former serpentine course. Last year, the South Florida Water Management District (SFWMD) recommended backfilling a large portion of C-38 to allow the Kissimmee River to return to its natural channel. For the first time, a Corps of Engineers project may be reversed. This recommendation was later endorsed by then-Gov. Bob Martinez and the SFWMD governing board.

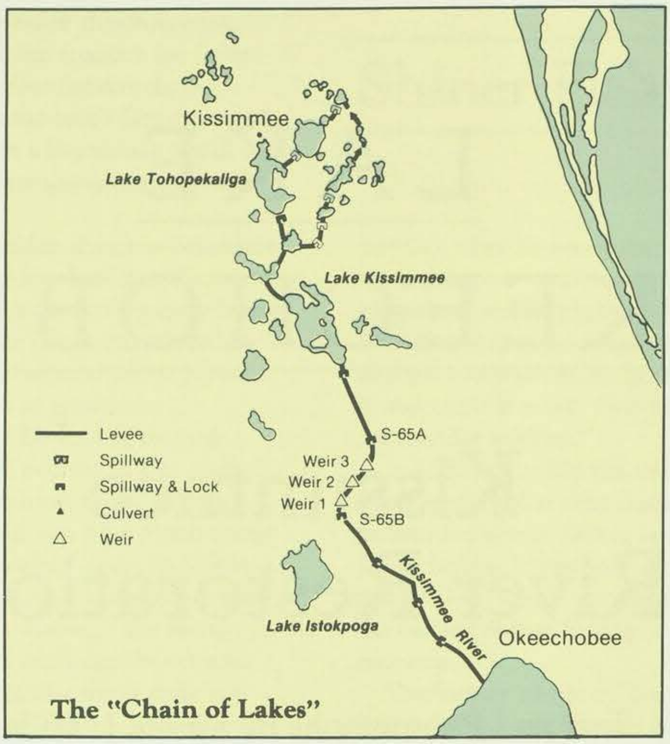
At the request of Sen. Bob Graham and U.S. Rep. Bill Lehman, the Corps of Engineers drafted legislation in the 1990 Water Resources Development Act that would authorize spending $270 million on the Kissimmee River restoration.

Although this is not yet its official position, the Corps appears to be shifting its original view on the Kissimmee River. A recent Corps directive stated, "An environmental ethic must become an integral part of how we conduct business." Further, the Corps has expressed plans to make Kissimmee River restoration the focus of this new environmental approach.

Unfortunately, under threat of a presidential veto, the Kissimmee River legislation was removed from ▷



Channelization of the Kissimmee River reduced the length of the river to a straight, 52-mile canal. Spoil was deposited on wetlands adjacent to the canal and is visible in the far right of this photograph.



The "Chain of Lakes"

the 1990 Water Resources Development Act before passage by Congress. However, it should be a top priority for passage in the 1992 Water Resources Development Act, and the prospects for undoing the environmental havoc wreaked on the river appear good.

The largest tributary of Lake Okeechobee, the Kissimmee River drains 2,400 square miles and is the source of approximately one-third of the surface water reaching the lake. The Kissimmee River basin is divided into two sub-basins. The upper basin, more commonly referred to as the "Chain of Lakes," is composed of a series of lakes connected by canals beginning near Orlando and extending through Polk County at the southern end of Lake Kissimmee. A few of the larger lakes within this chain include East Lake Tohopekaliga, Tohopekaliga, Cypress, Hatchineha and Kissimmee. The lower Kissimmee River basin encompasses the area between S.R. 60, where Lake Kissimmee empties into the Kissimmee River, and Lake Okeechobee.

In response to public demand for flood control, Congress authorized channelization of the Kissimmee River in 1954. The primary purpose was to allow more efficient release of flood discharges from the upper lakes. A secondary goal of channelization was to provide better flood control in the lower basin through stabilization of water levels. This, in turn, was expected to enhance navigational and recreational uses of the river.

Channelization dramatically affected the Kissimmee River ecosystem (see "Restoring the Kissimmee River," FLORIDA WILDLIFE July-August 1985). Over 30,000 of the original 45,000 acres of floodplain wetlands that existed in the lower Kissimmee River basin were either completely drained or covered with some of the 70 million cubic yards of spoil excavated during canal construction. Most former wetlands were converted to pasture. Over 35 miles of remnant river channel and oxbow habitat were either covered with spoil or converted to canal.

After years of the increasing public disenchantment with channelization, the SFWMD initiated a restoration demonstration project in Pool B, the second of five stair-step pools created when the river was straightened. The demonstration project addressed flood protection and dechannelization hydraulics, as well as environmental data. The demonstration project originally called for backfilling a section of the C-38 canal using existing spoil. In this way, the river would be diverted back into existing natural channels.

When the Corps of Engineers raised concerns about stability of the backfilled spoil, the SFWMD modified the plans and agreed to use notched sheet pile weirs instead of earthen plugs to divert water channels. Other components of the demonstration project included seasonal water level fluctuations within the pool and the construction of a flow-through marsh. Construction of the demonstration project was

A 1985 model of Kissimmee River Pool B.

initiated in 1984 and completed in 1985.

The project revealed that wetland plant communities quickly recolonized former ranges once the flooding patterns were re-established. There were more wading birds and waterfowl using the floodplain during high-water periods. Diversion of flows also revitalized aquatic habitat in abandoned river channels. Although there were measurable benefits, it became evident that the demonstration project did not constitute true restoration of the system. It did little to alleviate low dissolved-oxygen levels, which are more critical during late summer. When rapid drainage of the floodplain followed cessation of flows through the pool, two large fish kills occurred.

In 1988, researchers presented technical data at a symposium on the Kissimmee River. Participants stressed the importance of re-establishing a natural flow instead of intermittent flows that prevailed during the demonstration project. They realized that a critical component of any restoration plan would require modification of upper basin water regulation schedules, including an increase in storage capacity, to provide for a more natural flow.

Scientists developed precise environmental criteria for defining restoration. The holistic restoration approach included analyzing historic hydrologic data, minimum and maximum flows, stage-discharge relationships, stage recession rates and floodplain inundation frequencies. Seasonal variables also were used as criteria to define restoration alternatives to be used in the modeling studies.

In June 1990, the SFWMD released a report evaluating various alternatives considered for restoration: weirs, earthen plugs and two levels of backfilling. Weirs and plugs both divert water from the canal into the river channel. However, weirs use steel walls while plugs use fill to block the canal and divert water. Under the weir and plug plans, most of the C-38 canal is left intact. Level I backfilling is similar to the earthen plug plan except that a longer length is filled. Under Level II, as much of the canal as possible is backfilled. All restoration plans were required to maintain the level of flood protection currently provided by the existing system.

To evaluate sedimentation and erosion issues, the SFWMD contracted world-renowned river experts at the University of California at Berkeley to conduct physical and mathematical studies. Models were constructed to evaluate how well each alternative could meet restoration goals and flood control constraints. These studies indicated that the weir, plug and partial-backfilling plans would cause excessive water velocities in restored river channels. Additionally, flood waters would occur too infrequently and would ebb from the floodplain too rapidly. Level II backfilling, on the other hand, would better accommodate these goals and could restore approximately 52 miles of the river/marsh ecosystem.

Level II backfilling, however, would require floods to disperse naturally along the floodplain. It would be necessary to purchase uplands or flowage easements to alleviate potential flooding in upland areas. Studies revealed that implementation of the Level II plan could control sedimentation to minimize downstream impacts on Lake Okeechobee.

Although many obstacles remain, including a potential $350-million price tag, the Kissimmee River has a breath of life. For too long man ignored the delicate interaction of our rivers and their vitally important marshes. With our growing understanding, we hope the Kissimmee River once again will resume its winding journey to Lake Okeechobee. ▷

Sheet pile weirs were used to divert flow back through remnant river channels.

Channelizing The Kissimmee River

The U.S. Army Corps of Engineers began channelizing the Kissimmee River in 1961 and completed the job in 1971. The natural river channel was replaced by an excavated 200- to 500-foot wide, 30-foot deep canal. This canal bisected the heart of the Kissimmee River floodplain, reducing the length of the river by nearly half. Six water control structures also were constructed to create a series of five stair-step pools. Channelization completely destroyed the natural, free-flowing Kissimmee River ecosystem and replaced it with what could more appropriately be called the "Kissimmee River Chain of Lakes." Total cost of channelization was $31.6 million.

Perhaps more detrimental to the ecosystem than the physical destruction of habitat was the alteration of hydrologic regimes that occurred following channelization. Seasonal fluctuations in water level and flow, factors critical in maintaining the ecological integrity of the pre-channelized river/marsh ecosystem, were either eliminated or severely altered.

Public opposition to channelization of the Kissimmee River began to surface even before construction of the C-38 canal was complete. By 1972, both a Governor's conference on water management in South Florida and a special hearing conducted by the Central and Southern Florida Flood Control District called for some type of restoration to occur within the Kissimmee River valley. Most of the early calls for restoration centered around the belief that channelization of the river had caused deterioration in the quality of the water entering Lake Okeechobee.

In 1976, the Florida Legislature created the Kissimmee River Coordinating Council (KRCC) and charged it with investigating and proposing solutions for solving water resource problems in the region. Specifically, the council sought to: (1) restore natural, seasonal water-level fluctuations within the Kissimmee River basin, (2) re-create conditions favorable to increases in production of wetland vegetation and native wildlife, and (3) utilize the free energies of the river system to the greatest extent possible. In addition, Congress instructed the Corps of Engineers in 1978 to re-evaluate the Kissimmee River project and to determine if any modifications of the system were necessary to enhance water quality and fish and wildlife resources.

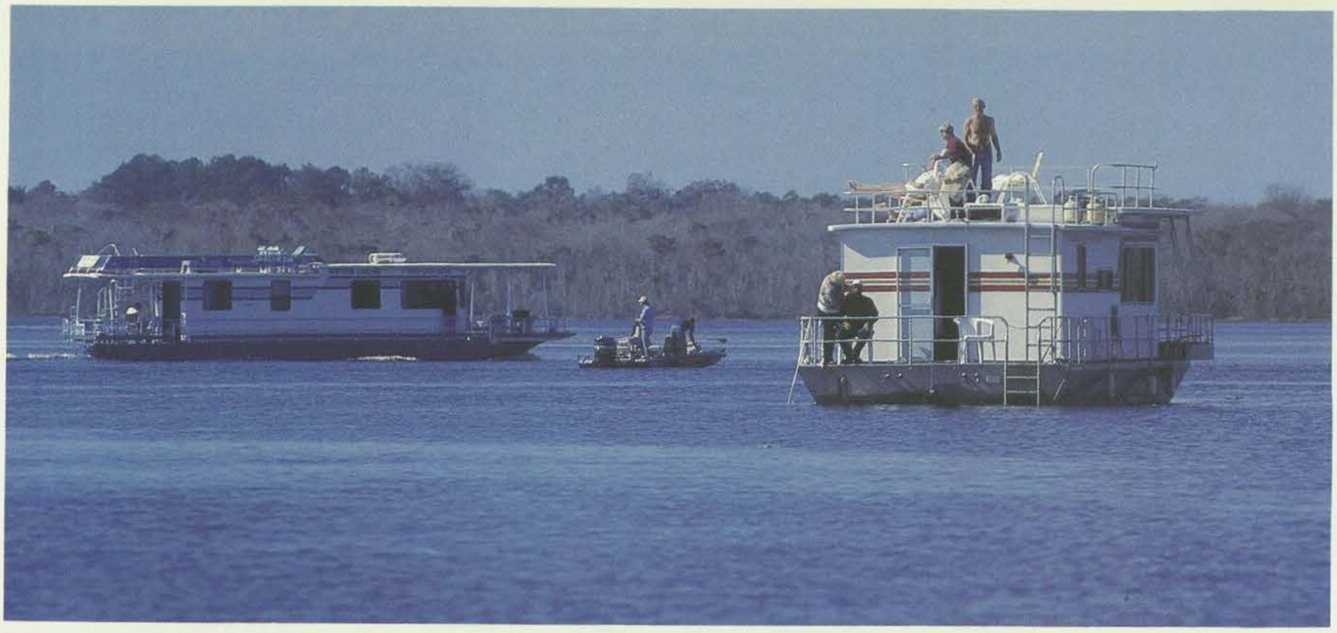
Both the Corps and the KRCC evaluated a number of restoration alternatives. They ranged from leaving the existing project intact to completely backfilling the C-38 canal. In 1983, the KRCC recommended that backfilling be the restoration alternative pursued by the state. The Corps released its report in 1985 and, although recognizing that modifications of the project could greatly enhance wetland and riverine habitat, recommended no federal action because the project did not meet traditional Corps cost/benefit criteria.

In 1986, however, Congress added Section 1135 to the Water Resources Development Act, which changed the Corps cost/benefit criteria to allow the agency to participate in environmental restoration projects. To date, Congress has appropriated $12.3 million toward the Kissimmee River under Section 1135.

While much progress has been made toward achieving restoration of the Kissimmee River, there are still a number of major obstacles to overcome. Foremost is the cost, estimated at greater than $350 million. Also issues of land ownership, navigation, upper lakes regulation schedules and tributary impacts must be addressed. SFWMD currently is purchasing lands along the lower Kissimmee River as well as lands around lakes Kissimmee, Cypress and Hatchineha. Land purchases are being made with funding through the Save Our Rivers program. Also SFWMD is attempting to work out a cost-sharing agreement with the Corps of Engineers. The Corps must become the lead agency in order to obtain federal funding for restoration.

We hope that federal authorization will occur in 1992. By then, the Corps should have submitted its final recommendation, and required land purchases will be nearly complete. Even with all obstacles removed, it could be another 15 years before restoration of the Kissimmee is complete.

Steven J. Miller is the project leader for the Kissimmee River Restoration Study.



Houseboat Crappie Fishing

The St. Johns River Way

Text and Photographs by Bob McNally

The McNallys found good fishing and family fun when cruising the St. Johns River in a houseboat.

Although the date on the March calendar read winter, temperatures were soaring as though it were spring. This kicked some northeast Florida fishing into high gear, and nowhere was the black crappie fishing action more consistent than in the St. Johns River south of the small town of Astor.

The Astor area has changed a lot in recent years.

Where once there were sleepy little fishing camps, huge, multi-story motels now stand. Little ma-and-pa-owned shacks that once served only catfish, hushpuppies, frog legs and grits have been replaced by fancy establishments — with elaborate menus and wine lists.

A no-wake zone has been imposed on the portion of the St. Johns River that narrows and winds through downtown Astor. The restriction is necessary because the cruising and bass boat traffic these days is so intense that it sometimes resembles Ft. Lauderdale on Sunday.

But, happily, the fishing — especially the crappie fishing — has stayed about as good as it ever was in lakes Dexter and Woodruff south of the boom town known as Astor.

While good motel, restaurant and boating facilities are available in Astor, a more relaxing and aesthetically pleasing way to tap the area's fishing is by cruising the river in a houseboat. You can rent a houseboat from several marinas in Sanford, south of Astor. But friend Johnny Doub of Salt Springs has a small 25-footer, so he, my sons Matt and Eric, and I launched his houseboat early one morning in Salt Springs, a west-shore feeder stream of Lake George.

It was cool that morning, and fog covered the run. As we motored out the spring creek toward Lake George, bass fishermen were working for bedding largemouths in the run shallows. When we reached Lake George the fog was gone, and it was clear running across the lake.

We were in no hurry, since our boat was our home for the next two days, so we enjoyed the lake sights of soaring eagles, ospreys and gulls. The youngsters watched in awe as Navy jet fighters made steep, daring bombing runs to the mid-lake piling ▷

area where they fired dummy rockets and bombs.

We stopped at several mid-lake areas to drift and troll for crappies with jigs-and-minnows suspended from cork floats. The fishing was slow, but Johnny knew of a productive alternative.

"There's a slough at the mouth of Dexter that always holds early-season crappies," Johnny said, smiling from behind the wheel of his newly refurbished houseboat. "I know we can catch enough specks there for a nice fish dinner."

So we chugged across the lake, through Astor and on to Dexter. The anglers in the dozen or so boats anchored in the slough must have shared Johnny's opinion of the area.

We found an open spot in the squadron of anchored boats, set our anchor, and promptly put out six rods rigged with live Missouri minnows on No. 6 gold hooks. The sun shone bright and warm. The kids were quietly concentrating on their fishing bobbers. The little houseboat rocked just enough in the river to make a fisherman's eyes heavy.

All was right with the world, just right for a nap, or so Johnny and I thought.

"Got one!" yelled Eric.

"Me, too!" cried Matt.

For the next few hours we had steady work hauling crappies over the houseboat gunnels. I've had better fishing for "speckled perch," but there was just enough activity of netting fish, putting them on stringers, and re-baiting hooks that adult respite was out of the question.

Finally, as the sun was setting and the air temperature was cooling, some of the boats begin filtering north, back to Astor and the boat ramps, to motels and waterside restaurants.

The kids still were catching fish as I flipped the first crappie fillets in the skillet. The little fillets curled and browned, and that succulent aroma all anglers relish wafted out the houseboat galley, through the open door and downwind to a skiff jammed with anglers.

"What's for dinner?" one of them asked smiling.

"Oohhh," replied Johnny with a grin, "frizzled specks, hash browns and beans. Jus' standard fare on this ol' fishin' houseboat."

The man laughed heartily. But it wasn't long before the remaining boats left, no doubt due to growling stomachs calling for dinner.

By dark, supper was ready, and we sat in the galley munching crispy crappie fillets. We were alone in the little houseboat on Lake Dexter. There were no boat lights, no loud motor noises. Somewhere, far off toward the lake bank, a barred owl hooted, followed shortly by another one from across the lake.

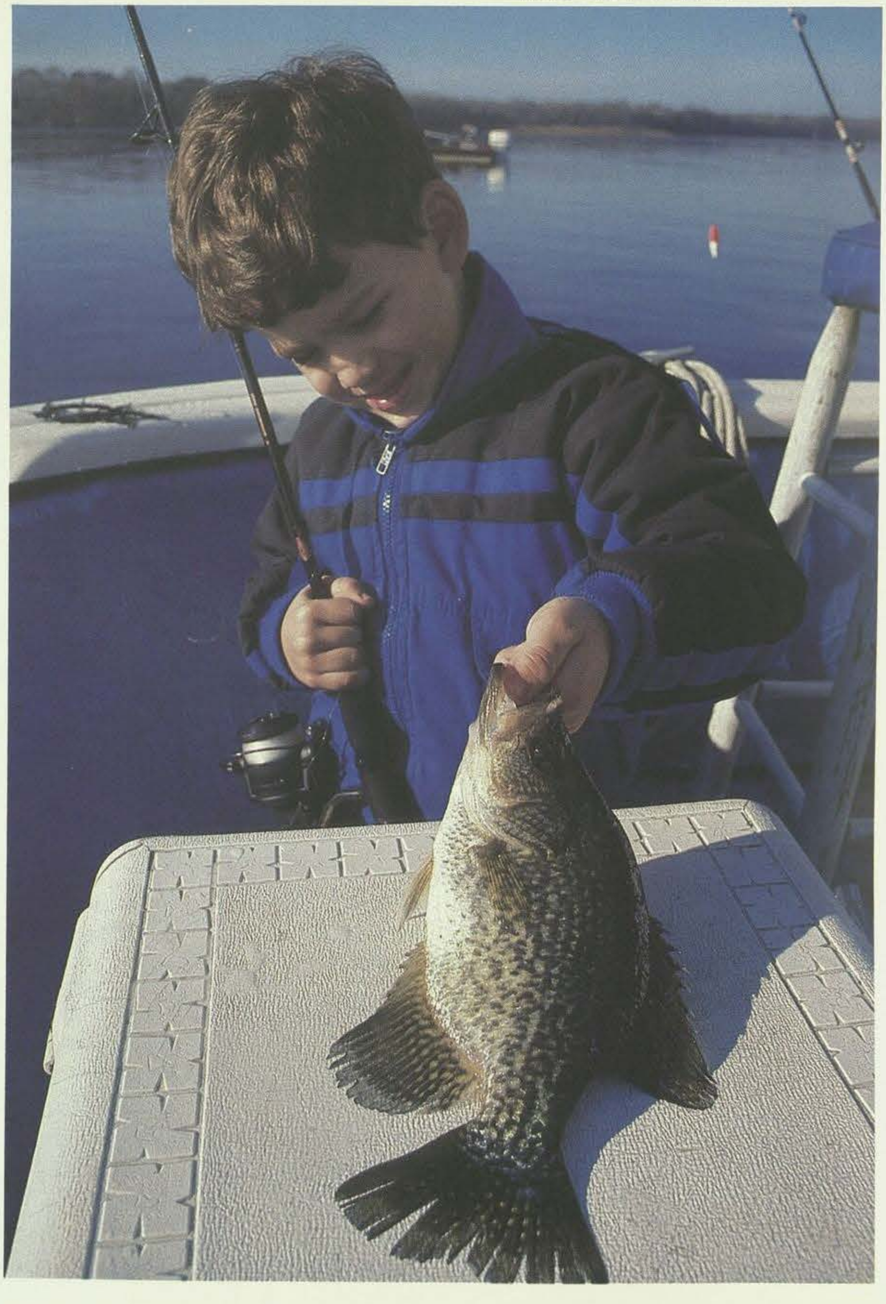
We stopped eating and listened to the chorus of Florida wildlife like we supposed countless others had done many years before us.

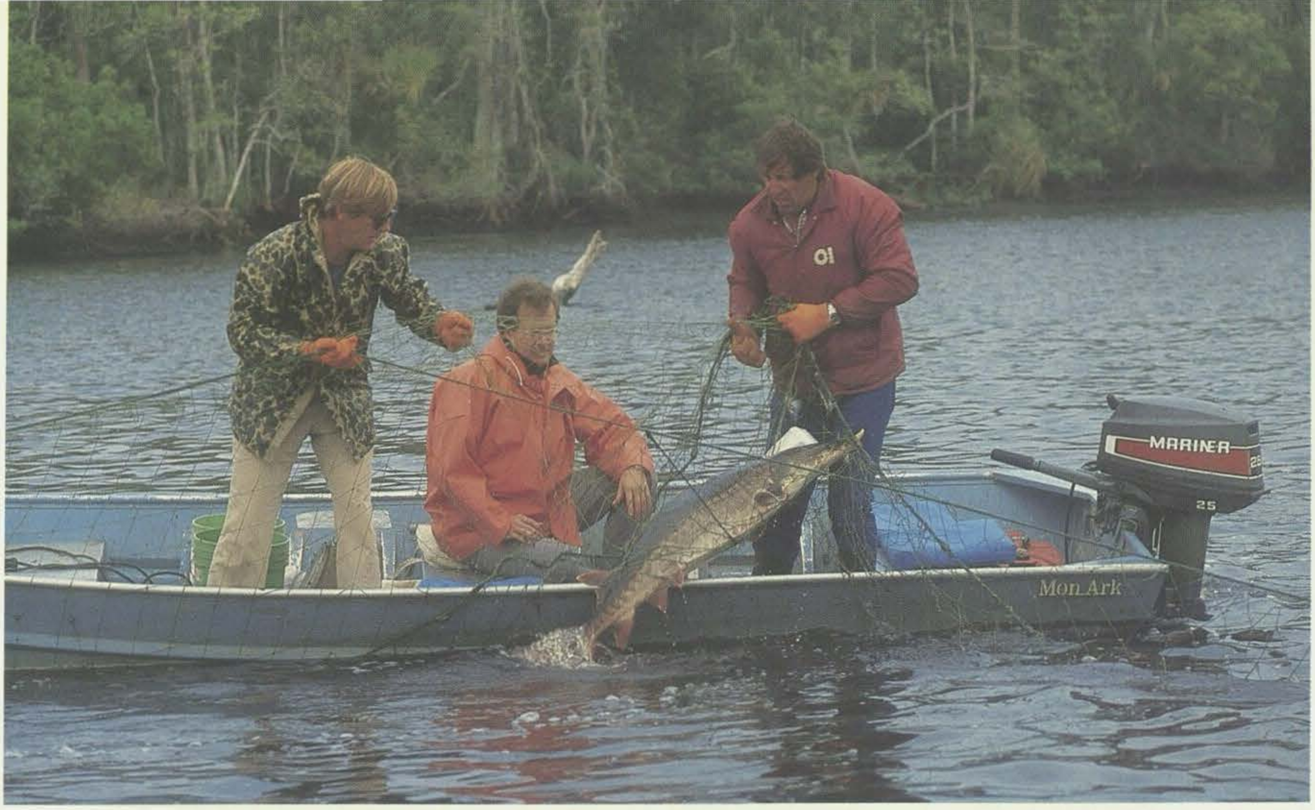
Later, after the dishes had been washed and stowed, the beds turned down, and everyone was asleep, the owls began hooting again.

For a long time I lay awake in bed listening to them, watching the stars, the moonlight, my sleeping sons — and wished for a houseboat of my own.

Bob McNally is the outdoors editor for the ***Florida Times-Union*** *newspaper and a regular free-lance contributor.*

Matt McNally holds a nice St. Johns River crappie.





Sturgeon in Florida? You Bet!

Text and Photographs by Richard Farren

Beneath an elevated house on the Suwannee River was a mad-scientist conglomeration of pipes, water pumps, water troughs and huge jars with black, organic masses circulating inside. Nearby, shadowy monsters lurked in the murky water of two gigantic tanks. The setting would have made Dr. Frankenstein proud.

A group of not-so-mad biologists circled the equipment, checking water levels, listening to pumps, and occasionally peering into the cloudy water of the larger tanks. Beyond the house the remnants of an early spring fog clung to the river.

The scientists were there for a variety of reasons, but they had one thing in common: an interest in the Gulf of Mexico sturgeon.

These biologists were attempting to collect, hold and artificially spawn the sturgeon. Others were busy with a netting-and-tagging operation and a radio-tracking project designed to reveal more about the life history, food habits and movement of the Suwannee River population of Gulf of Mexico sturgeon.

The monsters in the tanks included a 140-pound female sturgeon that recently had been captured and artificially spawned. The black mass was thousands of fertilized sturgeon eggs circulating inside numerous incubation jars.

To see a different part of the research process, we climbed into small boats and began wending upriver. Passing a large group of canoeists, I wondered if any of them suspected they might be paddling over fish weighing 100 pounds or more.

I was with Fred Tatman and Steve Carr of the Caribbean Conservation Corporation, checking nets set to intercept sturgeon on their annual migration upstream. About midway through the third net, they rolled a 40-pounder into our boat, and I got my first close-up look at one of these slow-moving, docile fish.

A truly remarkable fish, its entire head is bony, and its skin imbedded with bony plates called scutes. To the touch it's alternately soft and hard. From a side view it resembles a miniature version of Captain Nemo's Nautilus.

The Gulf of Mexico sturgeon (*Acipenser oxyrhynchus desotoi*), a subspecies of the Atlantic sturgeon (*Acipenser oxyrhynchus*), is anadromous, meaning that it migrates from a marine environment into fresh water to spawn. It once was found in riverine and estuarine habitats from the Mississippi to the Suwannee River, with some venturing along the Gulf coast as far south as Florida Bay.

Sturgeon were once abundant ▷

Thousands of sturgeon eggs circulate inside McDonald incubation jars.

enough to support a commercial fishery in many Florida rivers. The fish are prized for their roe, which is made into caviar, and for their flesh, which is usually smoked. Florida's Gulf coast fishery yielded a high of 351,000 pounds of sturgeon in 1902 and a low of 164 pounds in 1958. There was a brief surge to 57,700 pounds in 1968. By 1980, however, populations in all Florida rivers had fallen off drastically.

In 1984, the sturgeon fishery was closed in Florida. Since then, only the Suwannee River population has stabilized enough to maintain itself, although the Choctawhatchee River population probably is stable also.

In addition to overfishing, dams and dredging have destroyed or isolated much sturgeon habitat. The Jim Woodruff Dam on the Apalachicola River restricts the sturgeon to 32 percent of its former riverine habitat. It's also been affected by declines in water quality and pesticide contamination.

Some species of sturgeon in North America are listed already as endangered. In Florida, the Atlantic sturgeon is listed as a species of special concern (see *Delicate Balance*, page 9). The Gulf of Mexico subspecies is under consideration by federal authorities for listing as a threatened species. But more data on its vulnerability and on threats to its existence must be collected before that can take place.

Large commercial catches were once common because of the sturgeon's predictable habits. Every year from February through April the fish head into coastal rivers. Moving far upstream, hundreds of miles in some cases, they gather in traditional spots — generally holes or deep springs. While in the river the adult fish don't eat, but live off stored body fat.

In late October and November the fish return to the marine environment for three to four months of heavy feeding on worms and other bottom-dwelling invertebrates. It's not known exactly where they spend their winter months, although it's suspected they feed in estuaries and hard-bottom areas offshore.

Steve Carr began working with sturgeon in 1975 when his well-known father, Dr. Archie Carr, launched a research project on the Apalachicola River with funding provided by the Phipps Florida Foundation. Unfortunately, there weren't enough sturgeon left for a study, so the Carrs turned to the Suwannee, where they picked up the work of James Huff, a biologist with the Florida Department of Natural Resources. Huff is credited with the first scientific study on Gulf of Mexico sturgeon in the Suwannee River.

In 1985, Steve Carr enlisted the help of Fred Tatman, the last commercial sturgeon fisherman in Florida. Fred had the knowledge and equipment necessary to catch sturgeon. Since that time, they've caught, tagged and released over 1,200 fish.

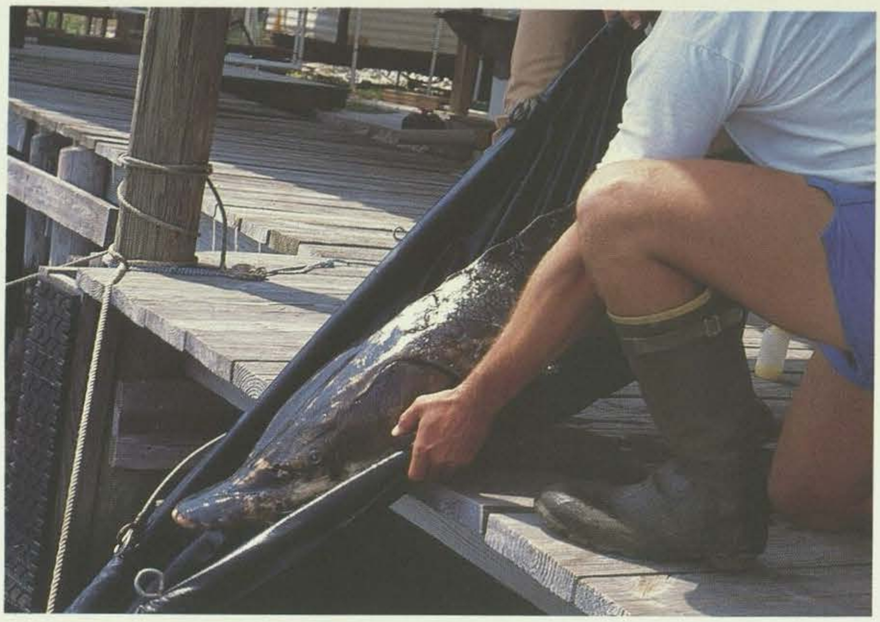
Their research has documented the true homing instincts of sturgeon, which usually will return to the same location in the same river, year after year. They've also found evidence of a fast growth rate. A tagged fish that weighed 23 pounds in 1977 weighed in at 100 pounds in 1984.

Carr isn't a degree-holding biologist; he might be described better as a wildlife activist. By continuing to work for restoration of the sturgeon and calling attention to its plight, he helped generate the U.S. Fish and Wildlife Service's interest in sturgeon.

One interested party was Jim Barkuloo, project leader at the U.S. Fish and Wildlife Service's Fisheries Assistance Office in Panama City. Now retired, Barkuloo's hope is to see the return of sturgeon to the Apalachicola River, where their numbers have dwindled to an estimated 110 fish by the most recent estimate.

A major step for the Apalachicola River would be the construction of a fish hatchery near the Jim Woodruff Dam that would spawn sturgeon and striped bass for return to the river. The hatchery has been proposed for funding in 1992, but its construction is not definite.

In the meantime, biologists are



After spawning, a large sturgeon is returned to the water.

developing reproduction techniques for the Gulf of Mexico sturgeon with the Suwannee population. Once the process is established, the operation can be moved to the Apalachicola River.

Early unsuccessful attempts at sturgeon culture took place in the United States at the turn of the century following a worldwide collapse of sturgeon populations brought on by the demand for caviar.

In the 1940s the practice of inducing ovulation by injecting hormones was developed. The Soviet Union immediately applied the technology to their native sturgeon populations and followed with fish hatcheries on many of their rivers.

In the early 1980s Soviet sturgeon hatchery technology was successfully adapted to Pacific white sturgeon at the University of California. The first attempt to spawn Gulf of Mexico sturgeon took place in the spring of 1989.

For assistance, Barkuloo contacted Frank Chapman, a reproduction biologist then working with the Pacific white sturgeon in California. A few sturgeon were caught, and Chapman flew in to initiate hormone injections.

Following a successful spawn, the biologists encountered a number of difficulties at the hatchery, but two juvenile fish did survive. Fondly dubbed "Stu" and "Sweet Pea" by the biologists, the offspring will be released around the end of summer. During the process the biologists learned much about raising sturgeon in captivity.

The eggs spawned last spring were distributed among two federal hatcheries and the U.S. Fish and Wildlife Service's National Marine Fisheries Laboratory. The young fish were exposed to various diets to determine their food needs.

Sturgeon can be raised on a diet of live food, but the cost and availability of food in large amounts is prohibitive. The project's goal is to develop a process for raising Gulf of Mexico sturgeon on processed food. Last year biologists were successful in starting hundreds of sturgeon on live food and then switching them to processed food.

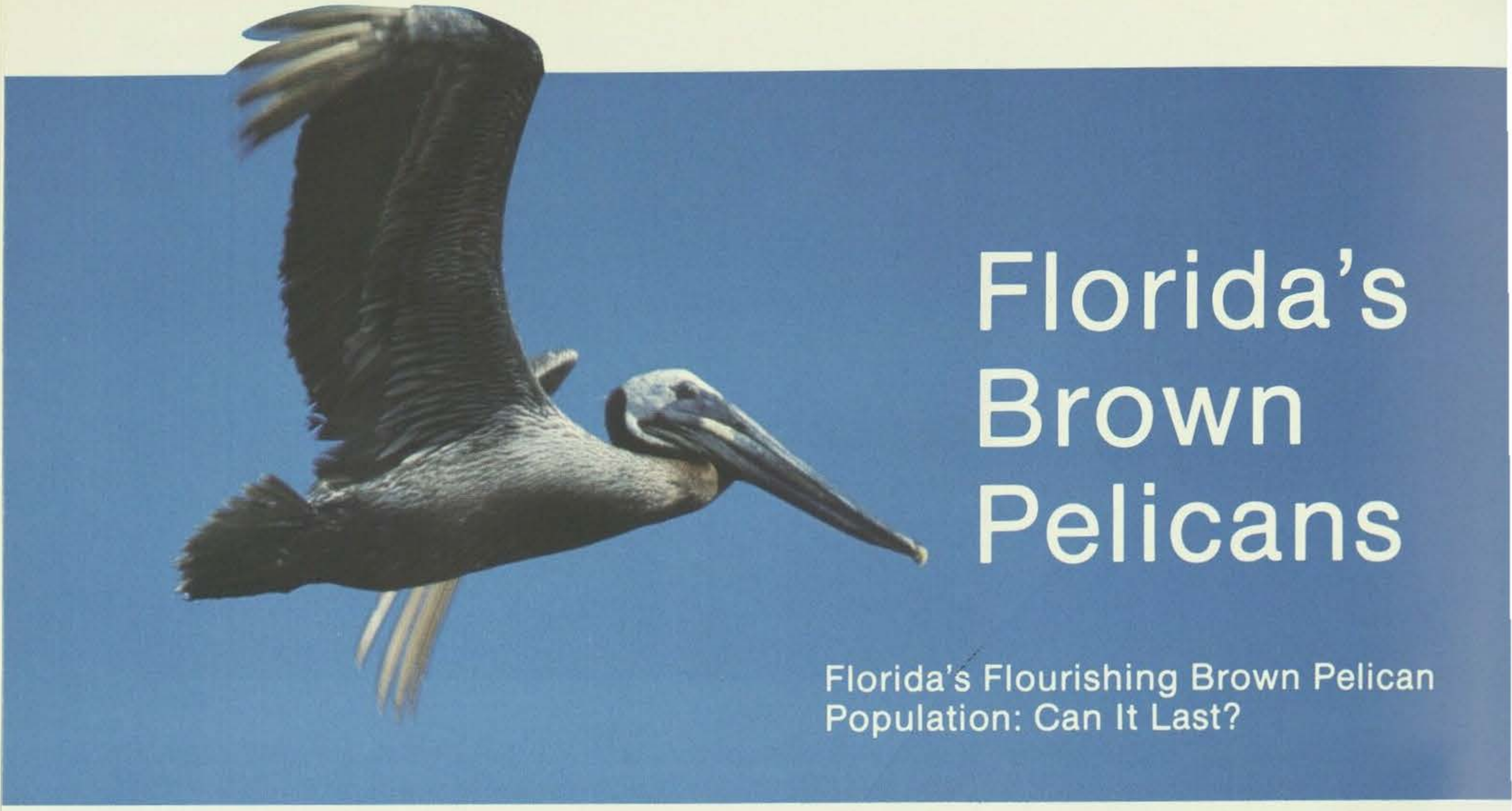
Chapman, now a professor at the University of Florida, is still working with sturgeon. He sees development of local hatchery programs as vital to protecting the sturgeon worldwide. The sturgeon's fast growth and desirability as a food source has made it an obvious choice for aquaculture production. Currently, millions of white sturgeon fry are being shipped from California to supply a worldwide boom in sturgeon aquaculture.

A danger lies with the inevitable escape of hatchery fish into local waters. By using native species, future aquaculture operations would avoid the risk of releasing exotic fish into the environment. Unfortunately, each species is different enough to require study and experimentation to determine its individual needs.

Chapman had another interesting perspective on the species. It seems that many articles about sturgeon refer to them as primitive or prehistoric, implying some sort of evolutionary dead end. He pointed out that sturgeon do have a long history, dating back 200 million years. However, they are highly evolved creatures and extremely well-adapted to their environment. It was humans who started manipulating the environment with dams and dredging and such, and developed a taste for fish eggs.

Steve Carr sees sturgeon restoration as another important reason to protect our rivers. The Apalachicola once supported 25 commercial fishermen who made between $600 and $800 per fish. A sturgeon fishery in Florida rivers could be a lucrative renewable resource, perhaps far exceeding the value of developing the river banks.

Richard Farren is vice president of the Florida Wildlife Federation, a nonprofit organization. He frequently writes outdoor articles for local and regional publications and is the editor of "Florida Fish and Wildlife News," the Federation's monthly publication.



Florida's Brown Pelicans

Florida's Flourishing Brown Pelican Population: Can It Last?

Text and Photographs by Stephen A. Nesbitt

As we consider such universal problems as global warming, resource depletion and habitat loss, it is reassuring to note that Florida's brown pelicans set a recent population high when last surveyed in 1989. The estimate of more than 12,000 nesting pairs is the highest since Commission biologists began conducting yearly production surveys in 1968. Another survey is scheduled for this spring. Results will be released in the fall.

The brown pelican, the darkest and smallest member of the pelican family, is the only pelican that plunge-dives for fish. The altitude from which it dives varies with the depth of the prey. In addition to depth, sun angle and wind direction also are factored into the pelican's dive equation. The pouch, sometimes erroneously described as a food-holder, is in fact a food-catching apparatus. When the diving bird enters the water above its intended prey, the pouch balloons, filling quickly with water, trapping the fish. If the dive is successful, the bird slowly drains the water from its pouch as it lifts its head from the water, bill down. Only then does it swallow the fish. Principal prey species in Florida are menhaden, mullet, Atlantic threadfin and various species of drum. These species, common to both the Gulf and Atlantic coasts, are dependent on a healthy estuary.

A species of special concern, the total brown pelican population in 1989 was estimated at between 32,750 and 57,250 individuals. The lower number is the pre-nesting population — breeding adults and non-breeding subadults. Brown pelicans normally do not begin reproducing until their third or fourth year. The higher number is the post-nesting population, which includes young hatched from the 1989 nesting effort. The 1989 population estimate has increased steadily and is approximately 45 percent greater than the average population estimate for each of the first 15 years of the survey. In earlier years, pelicans were found breeding at 20-25 colony sites, and now they are breeding at 30-35 sites yearly.

Although brown pelicans in Florida have not suffered from the effects of pesticide pollution that so devastated the species in Louisiana, Texas and California, we should not be complacent. Brown pelicans are more sensitive to pesticide poisoning than many other species of fish-eating birds. A large, reproductively healthy population is no guarantee that the species cannot be decimated quickly if the wrong chemical or combination of chemicals enter the food chain.

We are fortunate that we can see brown pelicans from almost any point along our 1,350 miles of coastline. Will this still be the case in 100 years? Only if we choose to preserve the habitat at a level and quality that will support the pelican. Responsible management of our coastal environment is essential for the brown pelican to continue to thrive in Florida.

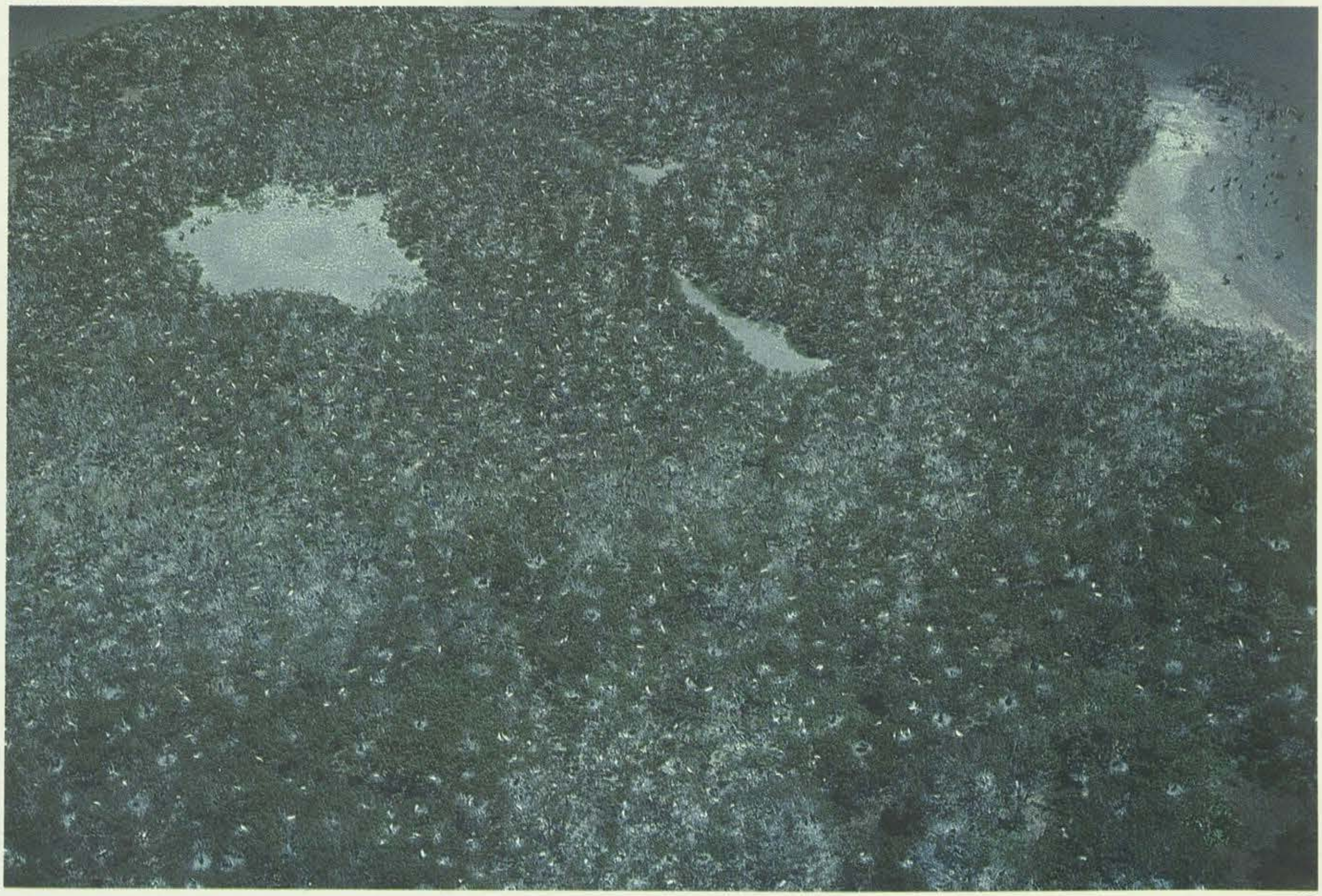
Stephen A. Nesbitt is a wildlife research biologist at the Commission's Wildlife Research Laboratory in Gainesville.

Brown pelicans normally begin reproducing in their third or fourth year.

In good years brown pelicans can raise three young, although two offspring are more common.

Pelicans usually lay three eggs that are incubated for a month. ▷

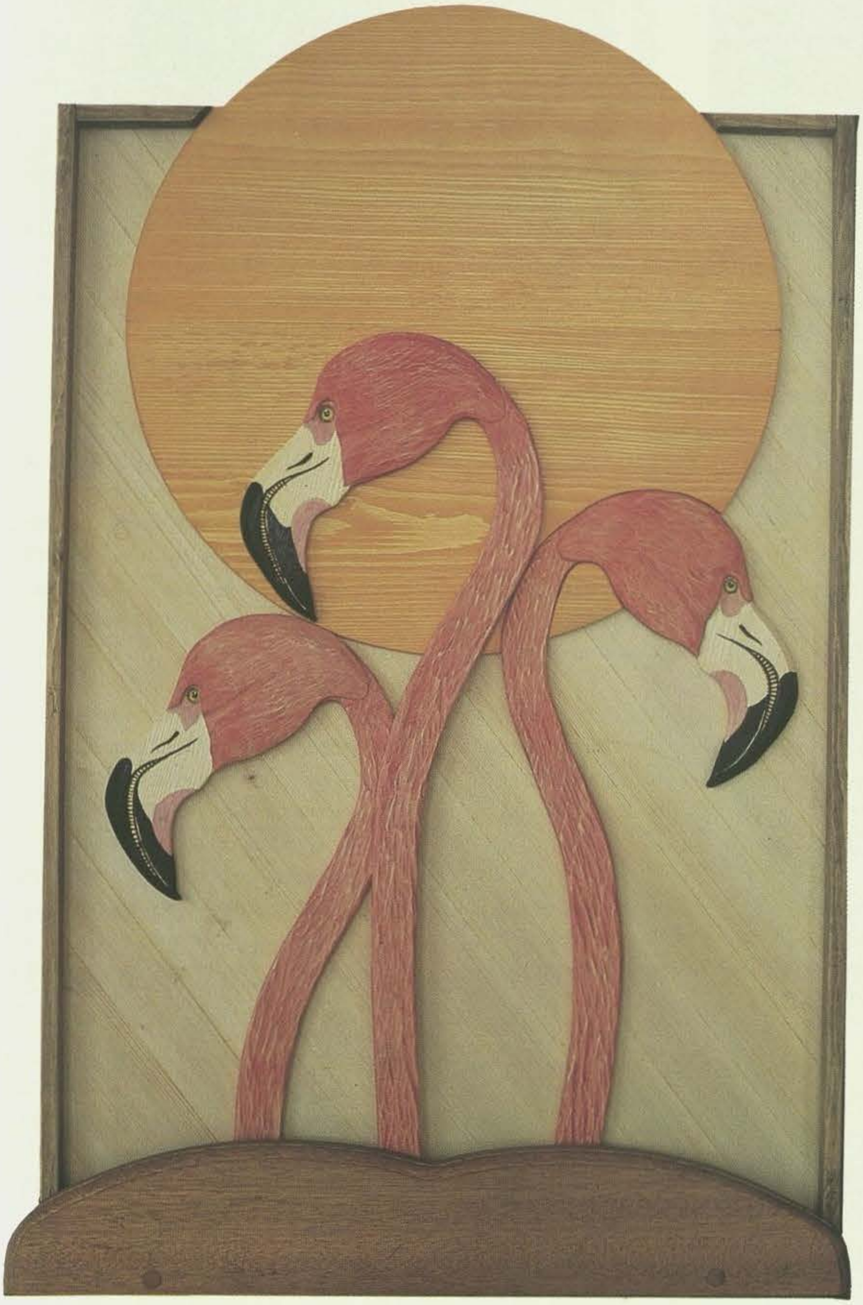
Hovering before a dive, the brown pelican is the only pelican that plunge-dives for fish (right). A species of special concern, Florida's brown pelicans set a record high when last surveyed (aerial photo below). However, brown pelicans are more sensitive to pesticide poisoning than many other species of fish-eating birds.



Fred Helk's Dimensions in Wood

By Frank Meyer

Photographs by Michael Koohn



He helped a blind man see. Perhaps he didn't start out to create dimensions in wood that a blind man could visualize, but that's where his art has taken him.

Sarasota County native Fred Helk always had an appreciative eye for the beauty he discovered in nature. While growing up, he developed the sensitivity needed to re-create the animals he saw in the wild by carving them out of wood. A stint in the U.S. Navy and three years at the Ringling School of Art and Design helped develop his talents and exposed him to the possibilities available through oils, acrylics and water colors.

Throughout his early adult years, two factors remained constant. First, he inevitably kept coming back to nature for his subject matter. Second, he was haunted by a consuming drive to create depth on a flat surface.

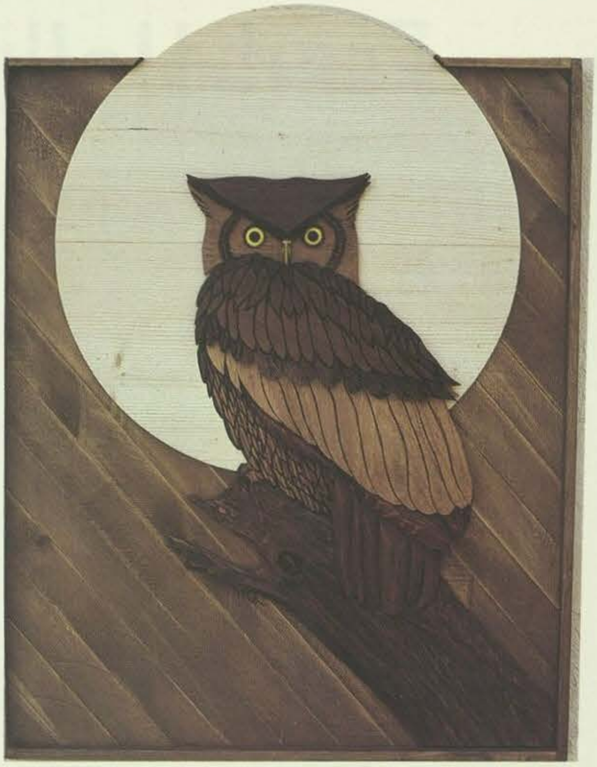
For Helk, the latter challenge was elusive and frustrating. He appreciated the grace of a soaring hawk or osprey. But drawing or painting this vision left him with a flat, two-dimensional depiction that made him totally dissatisfied. His eyes saw beauty that his hands seemed incapable of recreating.

After much soul-searching, Helk remembered the satisfaction he'd found in wood-carving when he was younger. These early efforts had given him the dimensional effects he now sought. And wood had always been one of the elements he worked with most comfortably.

So he got busy. His first piece was a stylized lion. Carving it taught him how to cope with the problems of bringing together the elements of a three-dimensional creation. And he began to develop the style and technology that would be reflected in his later productions.

Gradually Helk assembled the tools necessary to do the things he wanted to do with wood. There were round chisels, V-chisels, jigsaws, saber saws, band saws, table saws, various knives and wood-burning tools.

He experimented with cedar, spruce, redwood, oak, poplar, ▷



basswood and even eucalyptus, painstakingly learning the characteristics of each.

But the real breakthrough in developing his "creative dimensions" came with his discovery of a way to mix various shades of stain to create a desired color effect without blocking the wood's grain. The formula for this artistic process remains an integral and secret element of Helk's work. The range and brilliance attained by selectively applying these stains made painting unnecessary.

Helk devotes considerable time to creating new examples of his art, using the skills and knowledge gained through years of experimentation. An average piece takes the artist between 36 and 40 hours of concentrated work. When completed, the piece sells for $150 and up. The largest of Helk's works is a life-sized great blue heron, 52 inches tall.

Before an idea becomes a finished product, Helk first kicks the subject matter around in his mind, sometimes for months, before ever picking up a tool. He considers the perspective he wants to show and selects the most appropriate wood for the particular subject. The grain of the wood is extremely important. Certain woods, cut certain ways, expose grains that are amazingly characteristic of the textures of certain animal parts. This is especially true for bird feathers, for example.

Helk attempts to use such similarities to make his animals appear authentic. Sometimes he designs a subject's face around a knothole that resembled an eye when he first saw it.

Next, Helk researches the creature he plans to reproduce. He collects and studies all available reference material. Eventually, he draws an illustration to scale.

Then comes the hard part. Helk must study his sketch and decide which parts he wants to raise or carve in relief for the dimensional effect he's seeking.

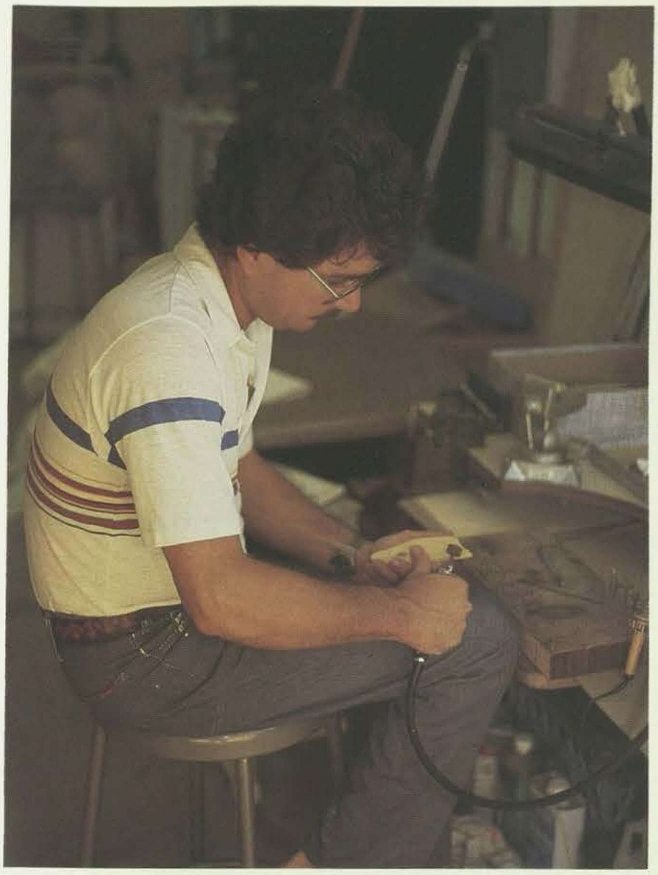
For this, he creates a series of overlays. The first shows the part of the work that eventually will be farthest away from the viewer. The piece or pieces must be drawn, cut, sanded, stained and hand-rubbed. He repeats the process for the second layer, again working toward the viewer, until sometimes as many as five layers of wood are used. He often thickens the plaque as much as two inches to obtain the desired depth. This process may be compared to creating a three-dimensional jigsaw puzzle.

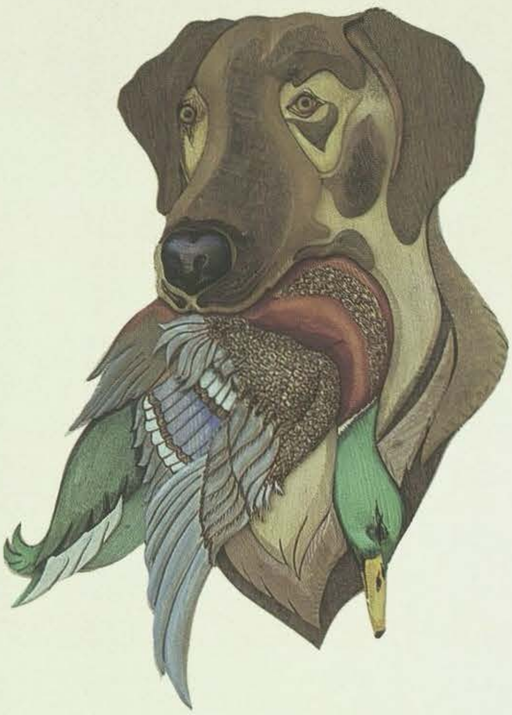
When all the parts (sometimes as many as 30) are completed and processed, he mounts them in place, either by nailing or gluing, and lets them set for 24 hours. Sometimes he uses a wood burner to capture the finer detail work.

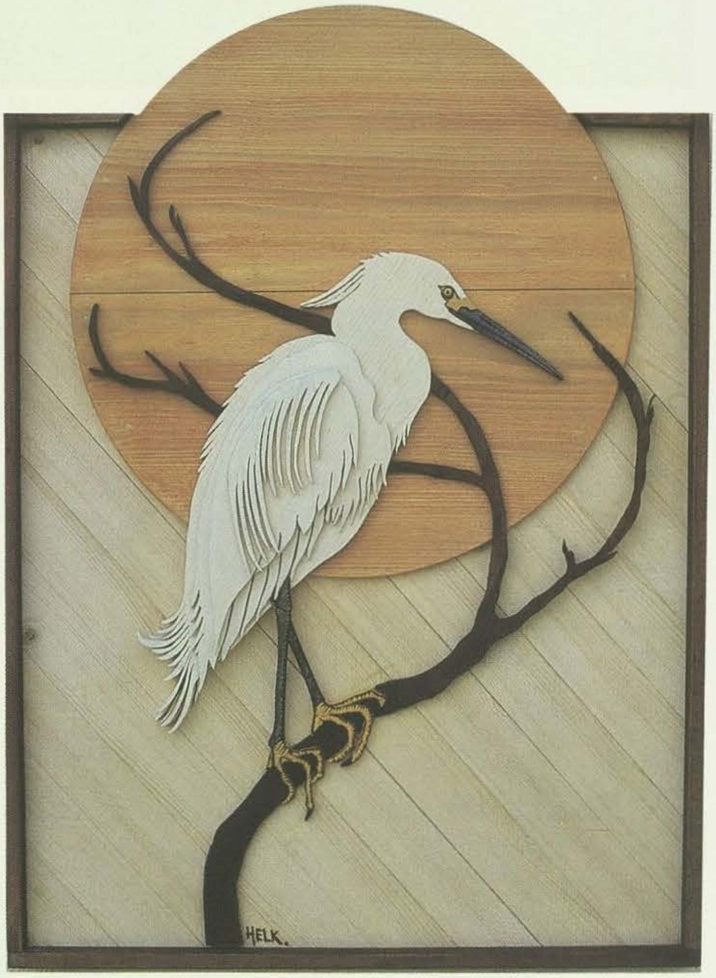
When Helk's work went on display in the Southwest Florida Retirement Center in Venice, several hundred people attended. One viewer, who is legally blind, especially enjoyed the showing.

His fingertips moved slowly over the different textures of wood and wood grain. A smile came to the old man's face, a smile that indicated he could truly experience and appreciate the material before him — even without the complete use of his eyes.

Helk's work reflects a rare talent, successfully connecting the art in nature with the mind of man.







Before he begins carving, Helk researches the animal carefully, eventually drawing it to scale (above left). Each piece in the finished product must be cut, sanded (above), stained and hand-rubbed. He then mounts them in place, by either nailing or gluing.

GLENN C. SMITH

Florida's

Spring Gobblers Galore

By Aubrey Martin

Tactics for Locating, Calling and Harvesting the King of Game Birds

It was a beautiful morning for turkey hunting in Florida's Nassau Wildlife Management Area (WMA). The wind was calm, and the forest was gleaming under the rising sun. Only the enchanting gobble of the wild turkey was missing. Previous scouting had revealed that a gobbler definitely was using the immediate area where I was hunting. Nevertheless, during the early part of the season, gobbling can be sporadic. Deciding to try another area, I returned to my vehicle. There I met with good fortune.

A hunter who was driving by decided to stop and get acquainted. He was a wildlife officer from Clay County with a couple of days off to hunt. He was kind enough to tell me about two gobblers he had hunted the previous day. One of the toms, he said, was a large, older bird. When they came in response to his calling, the younger gobbler was out in front. The hunter had wanted the larger bird but didn't dare take a chance on being seen, so he took the younger bird at a distance of 30 yards. The hunter told me the exact location of his hunt, suggesting that the old gobbler still might be there.

A dedicated turkey hunter gets excited even if he only hears someone tell about talking to a hunter who said he met a man who saw a gobbler track. I was excited about the possible opportunity of dueling with an old gobbler. When I arrived at the place, two other hunters were leaving the area. After introducing myself, I asked if they had heard a gobbler in the area. They said they had. A tom had gobbled at daylight, but they were unsuccessful in calling him up. They even told me the direction of the last gobble they'd heard.

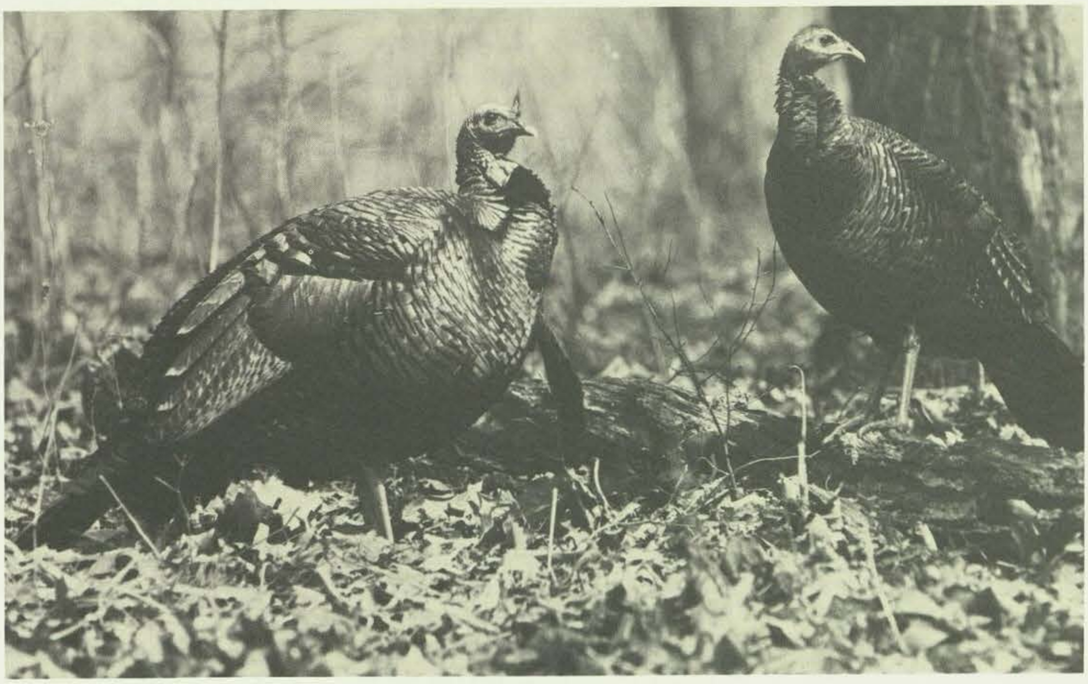
The area I was to hunt was a pine flat, next to a small swamp. I sat down in front of a large pine and made a few hen *yelps* at five-minute intervals. No response. After 30 minutes, I decided to try mobile calling. Being careful not to be seen, I walked slowly through brushy undergrowth. Using a mouth diaphragm caller, I imitated a hen seeking the company of a gobbler. After I moved about 100 yards, a thunderous gobble rang out 50 yards dead ahead. As I continued with sweet hen *clucks*, the tom circled to my right. Because of the heavy undergrowth, I could not get a clear shot at the bird that had come within 30 yards of my location. I knew the wary gobbler was expecting a hen to come to him.

The situation called for surprise tactics. I crawled away from the gobbler, then circled around behind. When I sent him a few *putts* and *cutts*, the old sultan double-gobbled ferociously and headed in my direction. He continued to gobble as he approached. Finally, he stopped behind a palmetto. This provided cover for me to place my Remington 1100 at ready. Finally, the gorgeous bird stepped into the clear in full strut. I waited, because the strutting position does not offer a good head shot. Finally, the great bird lifted his head high, expecting to see a turkey hen. I took him at only 25 yards. The gobbler weighed 20 pounds; his beard was 12 inches in length. At the time, this gobbler was the third largest taken in Florida and registered with the National Wild Turkey Federation.

Too Many Turkeys

I enjoyed another successful hunt in Nassau WMA a few years ago. Don Greenwood of North Jacksonville was my hunting partner. We were standing on the edge of a cypress swamp 30 minutes before the first light of day. Don chose a listening point on one side of the swamp, and I took a stand on the opposite side. We were hoping that at least one gobbler would sound off within hearing distance.

I imitated a barred owl with my voice but got no response. Later, at daybreak, I used my caller to make ▷



LEONARD LEE RUE III

inquisitive *clucks* and tree *yelps*. Finally, there was a gobble near my partner, who had taken the truck with him because it was a long walk around the swamp. Even though I knew the area could be harboring snakes and alligators, I threw caution to the wind and hurried through water up to my calf. Twenty minutes later, I'd crossed to the other side and stepped out onto the road.

Don was waiting for me before starting to work the gobbler near him. He said, "There are two toms 100 yards off the road. I'll try the one to my right. There's another one about 100 yards to the left."

We separated, and immediately the bird I was to work gobbled. I estimated he was about 75 yards off the road, directly in front of me. Then, to my amazement, while I looked for the best approach, a third gobbler let the thunder roll about 200 yards further down the woods road. This gobbler sounded like he was king of the hill, and I hastened in his direction. When I'd gone about halfway, however, another gobbler flushed close in front of me. I was so startled that I was unable to get off a shot.

There was some comfort in realizing that the "boss" gobbler was now only about 100 yards away. As I looked for a good place to use as a blind to call from, still another tom gobbled only 50 yards away. He sounded eager for company, so I decided to settle for him. Since he was across the woods road, I crossed to his side and set up behind some palmettos. I called to the gobbler, and each time he answered, he seemed to be closer. However, just when I thought I had him in the bag, a hen flew up in a nearby tree. She must have spotted me. She began to make strange sounds that I did not understand, but the toms did. Evidently, she was warning the gobblers of danger. Not a single gobbler made another sound. The game was up. I have been on many hunts and experienced defeat due to not finding gobblers. This, however, was the first time my reason for not scoring was because of too many turkeys!

Hunting at Camp Blanding

Camp Blanding WMA was the scene of another interesting turkey tale. Before the first light of day, I imitated an owl-hoot, hen *yelps* and *clucks*, and fly-down-*cackles* to no avail. I didn't hear any turkey sounds, even after the eastern sky became a rosy pink and the sun peeked over the horizon.

About the time I was ready to move to a different area, I heard a gobble about 300 yards behind me. After hurrying to the location of the gobble, I heard a gunshot. Certainly another hunter had bagged the same turkey I had heard. However, as I turned to leave, I heard another gobble, this time by a hunter. I assumed he had missed his shot. I knew the area well, and guessed this gobbler had flown into a swampy hollow on a Black Creek run.

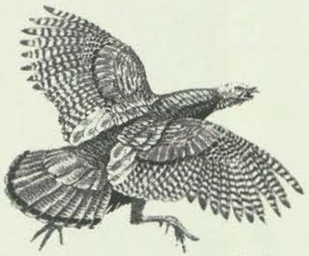
I drove to the other side of the hollow and made a *yelp*. Instantly, a gobbler answered. However, I got no reply to several other calls. I thought that if this was the same gobbler, he would be difficult to call up, so I decided to do some mobile calling. I walked in a big circle around the gobbler, about 100 yards from where he was perched. I tried several calls, including mating *yelps*, *putting* and the exciting *cutts*, which hens make when they want to meet a gobbler. Nothing seemed to budge the bird. Finally, I used a special tube call to imitate a tom's gobble. This must have made the old warrior jealous. He came hurrying to challenge the imaginary intruder in his territory. It was an easy shot to bag him at 30 yards.

Florida's spring turkey season is March 16 through April 21 for all zones. The daily bag limit is one, season limit, two; possession limit, two.

Florida always has had good turkey hunting, especially since the Florida Game and Fresh Water Fish Commission began using the trap-and-transfer program many years ago. However, due to tremendous development of suitable wild turkey habitat, the number of birds dropped. Now the Commission has built the population back to nearly 100,000, according to an estimate by the National Wild Turkey Federation (NWTF).

When the NWTF was organized in 1973, the national population of wild turkeys was approximately 1,500,000. After 17 years of dedicated effort, the population has climbed to an estimated 4,000,000 birds. Hunters and others who appreciate this magnificent king of game birds can help preserve the flocks in our great state by joining the NWTF. Membership is $20 annually and includes a subscription to the bi-monthly magazine, *Turkey Call*. This periodical offers information on how to hunt wild turkeys, as well as how to conserve huntable populations. For further information and a membership application, write: National Wild Turkey Federation, P.O. Box 530, Edgefield, SC 29824-0530.

Aubrey Martin, a retired minister, has hunted wild turkeys for 35 years. A member of the Outdoor Writers Association of America, he also spends his spare time as a free-lance writer/photographer and has published articles in regional and national magazines.


W. Hughes

WES PORAK

Making Memories

The Florida State Taxidermist Association

By Wesley Porak

The phone rang at the taxidermy shop. On the line was a frustrated sportsman asking if his "once-in-a-lifetime" trophy could be repaired or re-done. He said that the original taxidermy work was done very poorly. Apparently, Florida's professional taxidermists often receive similar phone calls. While there are many excellent taxidermists within the state, a few amateurs can taint the image of the profession. I attended a meeting in Plant City last summer where taxidermists were trying to improve the situation.

The members of the Florida State Taxidermist Association (FSTA) are trying to raise the standards of their profession.

"The purpose of the FSTA is the betterment of taxidermy through education and competition," president Wayne McDonald explained. Education includes seminars, newsletters, state-of-the-art product displays, and the exchange of information among peers. Taxidermists compete at annual meetings where their mounts are judged by experts in the field.

Obviously, one of the best ways to learn is by observing the techniques of a good taxidermist. The philosophy of the professional association is "to learn from the best." So, the association brings in some of the best taxidermists from all over the country to present two-hour seminars at the annual FSTA meetings. I was amazed to watch and listen to the presentations by nationally acclaimed taxidermists. Experts in the trade told us how to improve technical competency and skill. For example, Joe Coombs, an award-winning taxidermist from Louisiana, explained in detail how the skin of a white-tailed deer must be tucked behind the antler, just as it occurs in life. Earlier that day, Jim Allred had painstakingly demonstrated the step-by-step process of painting a largemouth bass with water-base paints.

Each taxidermist must be artist, naturalist and animal behaviorist to create life-like work. Most of the competition mounts look like they could prance away into the woods or swim off into the deep blue. Contestants may spend more than 200 hours on these works of art. FSTA members encourage people to view their displays at the annual meetings. This year's event will be held at the Holiday Inn at I-95 and Bay Meadows in Jacksonville June 7-8. On Saturday, June 8, the event is open to the public from 11 a.m. to 5 p.m.

The taxidermy competition is open to all FSTA members. There are professional and amateur levels of competition with 25 categories ▷

ranging from black bass to large animals, such as wolves or elk. Entries are not judged competitively against each other but each stands on its own merit. Judges award points, which can be accumulated to attain various levels of expertise, such as Master Taxidermist or Grand Master Taxidermist. This is part of the association's effort to professionalize the taxidermy trade.

In addition to recognition and awards, the competition is used as a learning experience since each judge notes areas where points are lost and suggests areas for improvement following each event.

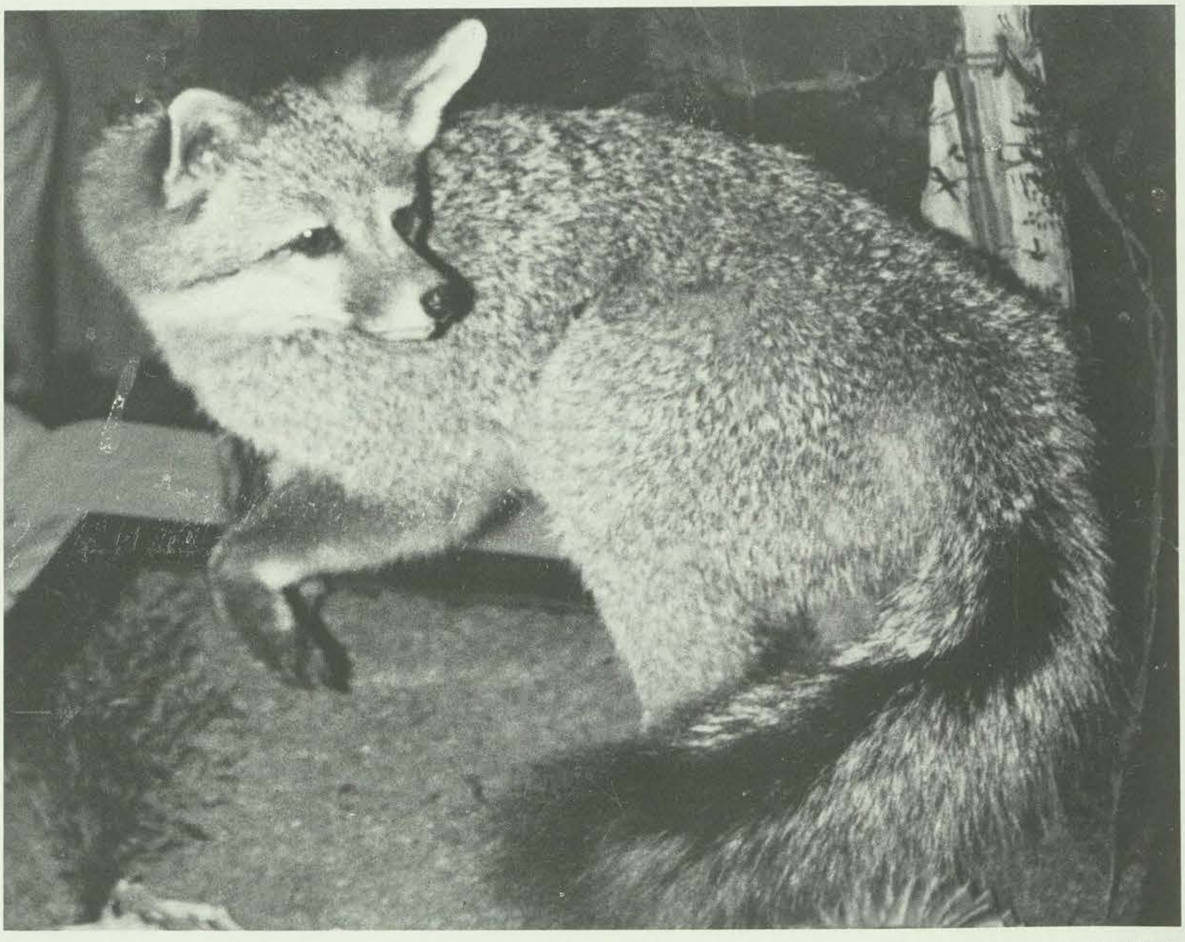
"The taxidermy profession was a hidden art 20 years ago, but it is much easier to get started today due to how-to videos," explained Andy Shaw, incoming president of the FSTA. Other resources include educational videos, professional taxidermy magazines, photographs and other reference materials, commercially available eyes, body forms and parts, as well as other materials for creating natural-looking animal habitats."

"Because of all the technological advances in the profession, taxidermy has advanced more in the past 15 years than it did in the 150 years prior," said Gene Dobbs, past president of the FSTA.

So how should a sportsman decide where to take his "once-in-a-lifetime" trophy? FSTA members are quick to say that people should *not* select a taxidermist over the telephone. Shop around! Customers should visit various shops to compare the prices and quality of each taxidermist's work. Examine mounts on display, and take time to look at the shop's photos and clippings. Talk to customers about their jobs. Keep in mind that one taxidermist may specialize in certain species of fish or wildlife while another may be a "jack-of-all-trades." Don't be afraid to ask taxidermists if they are affiliated with a professional association. Also ask if they have won any awards for their work.

For more information about the association, contact Andy Shaw at (904) 388-1271, or write to him care of the Florida State Taxidermist Association, 4815 Astral Avenue, Jacksonville, FL 32205.

Wesley Porak is a fisheries biologist with the Largemouth Bass Research Project.



A.L. SHAW

Ask Your Biologist

By Phil Chapman

Dear Fisheries Biologist:

I recently caught a bass with a bright, orange tag inserted into its back. A number was printed on the tag, along with a Commission telephone number. What is this tag used for, and is there a reward for catching this fish?

Sincerely,

A Tallahassee Fisherman

Dear Fisherman:

Biologists tag fish for a variety of reasons. They use various types of tags, including the type you described — commonly called a dorsal streamer or spaghetti tag.

Biologists use a tagging gun with a hollow needle to insert the tag. The base of the tag is positioned between the internal skeletal projections of the dorsal fin, where it is secured with a monofilament barb or "T-bar" anchor.

Our biologists frequently use the internal anchor tag, which also consists of a tubular streamer, but its base is a flat, elongated disc. They tag the fish by making a shallow incision into the stomach area, then inserting the tag pad into the body cavity. The small wound quickly heals, and neither technique harms the fish.

All tags are coded with an identifying number, along with a telephone number for reporting the tag. When collecting fish for tagging, biologists record the identifying number, the length and weight of the fish and the location where it is released. If these fish are subsequently recaptured by anglers or biologists, the tag number provides important information.

Tagging studies give fisheries managers valuable insight about individual fish, and provide collective data about fish populations. They determine growth rates by comparing the size of the fish when tagged and recaptured. Additionally, behavioral tendencies are important aspects of tagging programs. Movement distances and migration routes can be traced, and the affinity of fish for certain habitat types or homing tendencies may be documented. Tagging studies determine survival rates of stocked fish and mortality rates of adult fish due to angler harvest. Recapture rates of tagged fish are useful in assessing abundance of fish or population density.

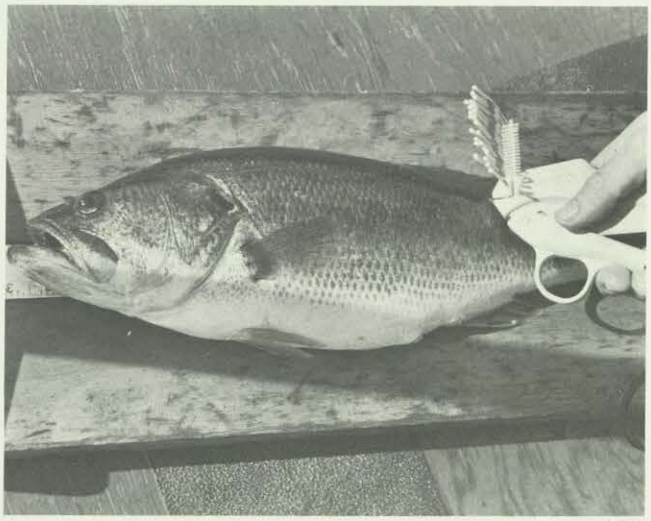
We encourage fishermen to report all tagged fish. Anglers play an important role in this type of data collection. To assure that the tag number is properly recorded, fishermen are requested to mail the tag to a GFC office, noting the size of the fish, and when and where it was caught. If you wish to release the fish, clip the tag near the fish's body. Anglers usually are notified when the fish was tagged, how much it grew and how far it moved. The percentage of tagged fish caught by anglers varies, but of the thousands of fish tagged annually, the rate of recapture generally ranges between 15 and 30 percent.

To encourage the reporting of fish tags, some may offer a reward of $5 to $50. These tags say "REWARD" on the streamer and are easy to identify. Anglers returning these tags will receive a check. Some tagging programs are co-sponsored by local businesses which may offer prizes instead of monetary rewards.

Catching a tagged fish is a unique experience to anglers and serves an important function to fisheries biologists. Data obtained from tagging programs contribute greatly to research and management efforts. We appreciate your participation.

Sincerely,

Phil Chapman
Fisheries Biologist



GFC

It's The Law

By Inspector Kyle W. Hill

Question: If I camp for three days, what is the maximum number of speckled perch (black crappie) I can carry home with me?

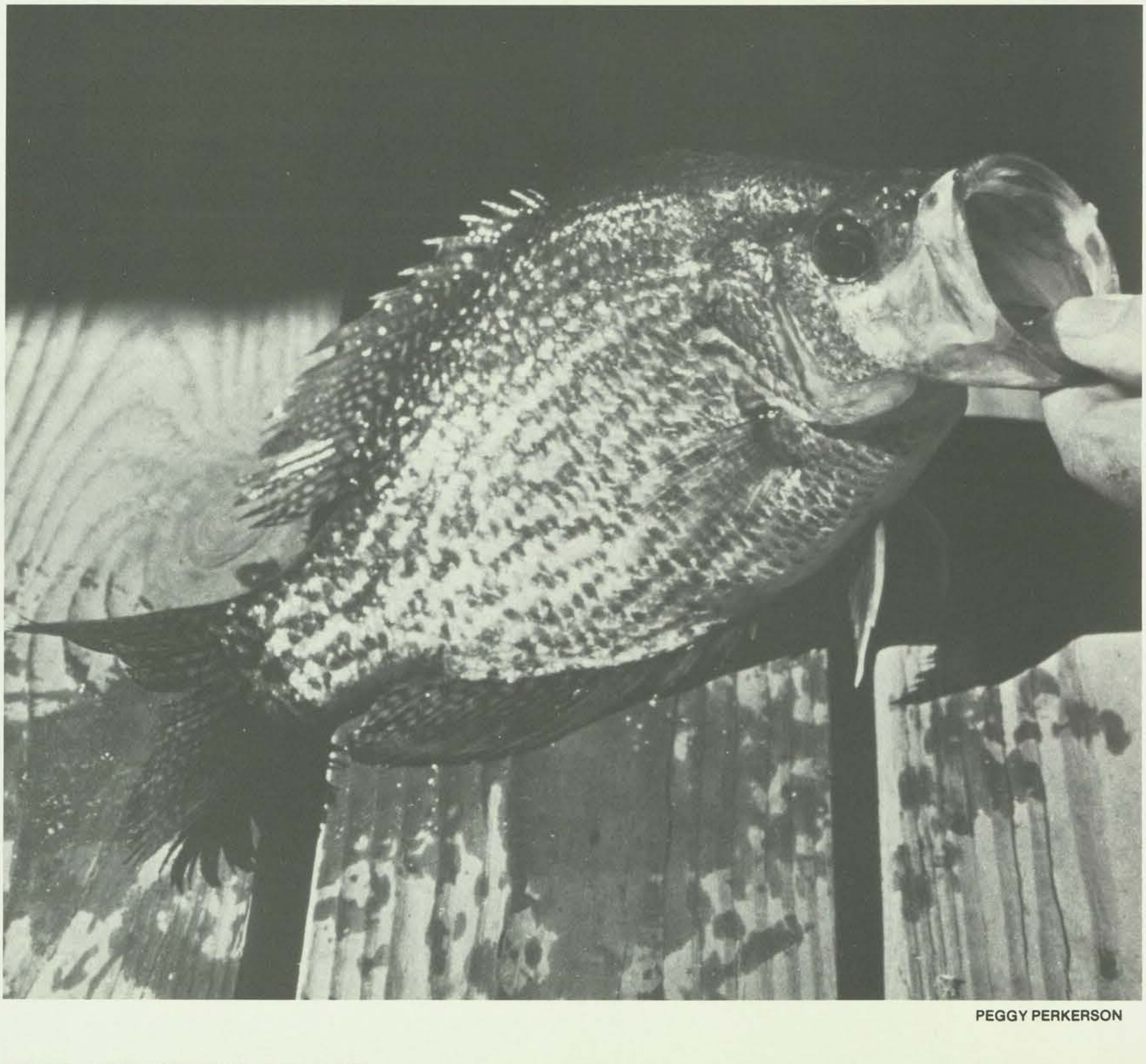
Answer: Under current law, you are entitled to a maximum of two days' bag limit of freshwater fish while camping. This limit is called a "possession limit." An angler may take no more than 50 specks per day and possess no more than 100 at any time outside of a domicile. There is no limit to the number of fish that may be kept in a home freezer.

Question: Is it illegal to use electronic fish attractors, swimming fish baits or multiple hooks on a line?

Answer: No. These methods are not prohibited. However, "snatching" freshwater fish, including catfish, is unlawful.

Question: May I carry a firearm with me on fishing and camping trips?

Answer: Yes, provided that you are not in an area where the possession of firearms is unlawful (such as a refuge or wildlife management area). It is unlawful for a person to display a light at night in a manner capable of disclosing the presence of wildlife while in possession of a gun.



PEGGY PERKERSON

Hunter Education

By Captain Ed Tyer

Spring turkey season, March 16 through April 21, offers some unique hunting opportunities.

Hunters conceal themselves in the woods and imitate turkey sounds to attract gobblers to their blinds. Although this is a challenging and enjoyable hunting method, it also can be very frustrating. A turkey hunter has an opportunity to test his skills, imitating calls of the species to attract other turkeys. However, this type of hunting does have an element of potential danger if all who participate are not considerate of others in the field. If you plan to go turkey hunting this spring, there are things you can do to help ensure a safe and enjoyable hunt. Here are some suggestions from Donald M. Garver of the Illinois Department of Conservation, slightly altered to fit Florida hunting:

1. **Don't ever attempt to approach closer than 100 yards to a hen or gobbler.** The "hen" or "gobbler" you hear could possibly be another hunter! He may call so realistically that he sounds even better than a real turkey.
2. **Never select a tree that is narrower than your shoulders as a calling site.** Small trees won't hide slight, visible movements of your hands or shoulders which may appear to be part of a turkey to any hunter who might be stalking your sweet calls. Use that tree to protect your back where you can't see behind yourself.
3. **Never jump or turn suddenly when you hear a turkey call behind you.** Wait until the bird walks to where you can see it, or call it back later.
4. **Never select a calling site where you can't see at least 40 yards in all directions.** Good man-made turkey calls frequently attract unskilled hunters. It is imperative to clearly identify your target as legal game before you shoot.
5. **Never stalk a turkey. The idea is to call your gobbler to you.** Some of those turkeys you stalk might be anxious hunters using a gobble call. If you try to call a gobbler to you and decide that moving to another calling site might convince him to come, don't. If it's a gobbler, he'll probably see you.
6. **Don't use a gobble call unless it's one of those rare situations when circumstances warrant trying something different.** When you shake a gobble call, your hand can look like a turkey's head. And a gobble call is guaranteed to attract every hunter who hears it. If you're unsure of how and when to use a gobble call, don't use it.
7. **Don't think you're totally invisible when you're fully camouflaged!** You're visible to both turkeys and hunters when you move even slightly. Sitting perfectly still will fool more turkeys than all the camouflage you can wear.
8. **Never wear red, white or blue clothing, not even undergarments of these colors. These colors are unsafe for turkey hunting.** Red is the color many hunters count on to differentiate a gobbler's red wattles from the blue-colored hen's head. White could look like the snowball-colored head of a gobbler, so leave those white handkerchiefs at home. Blue is the predominant color of a hen turkey's head, and unethical poachers may decide to illegally harvest a hen.
9. **Never presume that what you hear or whatever answers you is a turkey.** The better you become at imitating a hen call, the more hunters you will attract.
10. **Don't try to hide so well that you can't see what's happening.** You can't kill a turkey you can't see. It's better to select calling sites where you can see for at least 75 yards and have nothing restricting your movements. A gobbler may walk up to within five feet of you in open woods — if you don't move. Gobblers don't like dense, brushy areas where they can't see potential predators.

An additional suggestion to help ensure a safe and uninterrupted hunt is to wrap a piece of blaze-orange plastic tape, barber-pole style around a limb or tree close to your blind. This will alert other hunters that you are in the area. Be sure to remove the tape when you leave, and use it during your next hunt.

Whether it's turkey, deer or any other type of hunting, our sport is considered to be very safe. It is through courtesy, cooperation and safety by those who participate that we can continue to enjoy our outdoor heritage.

Conservation Update

Compiled by Andrea H. Blount

Mideastern Aerial Surveillance

Division of Law Enforcement's Lt. Lance Ham was activated by the U.S. Army Reserve and is "still doing aerial surveillance — just a little farther east," according to letters from the Mideast.

Lt. Ham is assigned to Saudi Arabia flying Iraqi border surveillance and radio-jamming missions. He flies an unarmed, twin engine turbo propeller aircraft equipped with anti-missile flares and chaff, which confuse aircraft guidance systems.

He'd appreciate hearing from state-side folks. Write to: CW 4 Lance H. Ham, SS 265-80-6137, 513 MI Bde., 138th AVN Company, APO, NY 09852.

Governor Proclaims March As Living Well Month

March is "Living Well in Florida" month — a time for Florida residents to focus on their current lifestyles and make changes to enhance their level of fitness, health and nutrition.

The Governor's Council on Physical Fitness & Sports is promoting the statewide effort to improve quality of life through the wellness program. "Balance is the key to living well in Florida," the theme for the Living Well '91 program, focuses on the benefits of a healthy environment.

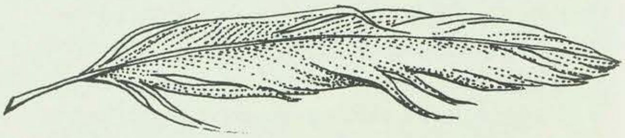
For more information, contact the Governor's Council on Physical Fitness & Sports, at (904) 336-2120; 1330 N.W. 6th Street, Suite D, Gainesville, FL 32601.

Give Us Your Best Shot!

We're looking for a few good photographs! Specifically, we're looking for slides taken in Florida of wild, native species. The 1991 FLORIDA WILDLIFE Photo Contest winning entries will be reproduced in the September-October and November-December issues. Winners receive cash honorariums. The four categories of competition include wild birds, wild mammals, wild animals (other than birds and mammals) and Florida's natural environment.

Watch for the official rules and entry form in the May-June issue. Entry forms must accompany each entry. Forms are available at your closest regional office or by writing to FLORIDA WILDLIFE Photo Contest, 620 South Meridian Street, Tallahassee, FL 32399-1600. Please include a self-addressed stamped envelope with your request. Photocopies of the contest form are acceptable.

The deadline for the 1991 FLORIDA WILDLIFE Photo Contest is June 28.



Help A Bluebird, Build A House

Bluebird nesting season is here again, time for Floridians to put up bird houses to help this colorful, yet increasingly rare species.

The bluebird's preferred nesting sites in old, cavity-ridden trees are fast disappearing, but a properly located bird house of the right size makes a suitable alternative.

Professor Joe Schaefer of the University of Florida's Institute of Food and Agricultural Sciences said a proper bluebird house should be 5 inches on each side, 9 inches high, with a 1½-inch diameter hole. One side should be easy to open for cleaning. According to Schaefer, bluebirds will find your birdhouse more attractive if it:

- is placed along pasture fence rows, edges of golf courses or similar open fields,
- is not painted,
- does not have perches,
- is about 4 feet above ground, and
- has small holes near the top on the side for ventilation.

"Bluebirds eat insects," Schaefer said. "They are a farmer's friend. Their beauty has inspired songwriters and poets. They have a beautiful song, too, and they don't sing it too early in the morning. What more do you want?"

If you're not up to building one, bluebird houses are available commercially from many nurseries and garden supply stores.

Spring Bird Migrations

There's a grand invasion about to occur across all of Florida. It will involve tens of millions of skilled, motivated individuals — members of the greatest airborne battalion on earth. And there's nothing the Army, Air Force, Marines, or Navy can do but sit and watch it happen. And so should you.

From March through early May, migratory birds will be returning to North America from their wintering grounds to the south. The march of migrants begins as a trickle — a few purple martins here and there, a parula warbler or two in March — and escalates to a "downpour" by mid to late April. On a single day in late April, experienced Florida birders can catalogue 150-180 different species and thousands of individuals, most of which are migratory birds caught in transition.

There's no more spectacular show anywhere than along Florida's coast. Tanagers flit between bushes in blazing flashes of scarlet and red; scores of warblers dart about like animated flowers; and grosbeaks, buntings and finches bounce across ground and about bush like multi-colored balls.

Florida's coastline is extremely important to many migratory birds that cross the Gulf of Mexico or Atlantic Ocean. These birds arrive after a long, arduous journey lasting 12-24 or more hours, and there's little food and no resting along the way. The first place to refuel for what remains of the trip north — often as far as Canada — may be along Florida's coast.

I once spotted a blackburnian warbler hustling towards shore about three feet above the water — perhaps a bird coming directly from Veracruz or the Yucatan Peninsula. The bird hit the shoreline and rolled over in the sand, exhausted. It righted itself, stood in place for about 20 seconds, and then made a final dash towards a nearby woodlot in hopes of finding food and water.

Historically, there were plenty of coastal forests alive with choice insects and budding foliage. Coastal hammocks, rich with live oaks, seem to be of particular importance since the production of catkins — which attract many insects — peaks in April and coincides with the return of many insect-eating birds. A careful study of a coastal hammock will sometimes result in a dozen or more species of warblers, as well as many different vireos, cuckoos, tanagers and thrushes.

Today, however, many migratory birds face a jungle of asphalt, silica and cement rather than an insect-rich hammock when they reach our coastline. This can spell trouble. A few studies have shown that the reduction of coastal hammocks has a measurable impact on the diversity of migratory birds in an area — even when small hammocks are preserved as "mitigation" for the loss of more extensive tracts.

Floridians can protect and enhance native canopy trees and shrubbery in coastal areas where migrants are likely to show up hungry. If your lot was cleared to build your home, plant a couple of oak trees and several native shrubs. The Commission offers some guidelines for enhancing your backyard environment with its publication "Planting a Refuge for Wildlife." Write for a copy so you too can witness one of the greatest shows on Earth.

— Jim Cox

Fisheries Biologists Receive Productivity Awards

The Division of Fisheries Lake Restoration Section and Chemistry Laboratory were among the winners of the 1990 Davis Productivity Awards Program.

The Lake Restoration Section won first place in the "Notable" category for its lake drawdown restoration project on East Lake Tohopekaliga in Osceola County. Biologist Ed Moyer and staff were recognized for improving the lake's aquatic habitat, which brought greater recreational use and economic benefits.

Homer Royals, Ted Lange and Harold Carpenter of the Commission's Chemistry Laboratory won third place in the same category for developing methods for mercury analysis. Their innovation was prompted by findings of mercury contamination in largemouth bass and panthers in the Everglades.

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Floridana

If you were to conjure up a mental landscape of Florida, chances are your picture would include a tree.

The Sabal palm, Florida's state tree, fits right in with the picture-post-card vision of a sun-drenched beach. We cherish our giant live oak trees, draped with Spanish moss. The cypress trees that flank our rivers and permeate our swamps are characteristic of Florida's wild side. And let's hope we're not too late in our efforts to preserve mature stands of longleaf pines as cavity sites for endangered red-cockaded woodpeckers.

There's another native tree with a place in Florida's history, but, unless you're an old-timer from Lake Okeechobee way, chances are you haven't seen it growing wild.

The locals called it the "custard apple." Also known as the pond apple (*Annona glabra*), the trees once blanketed the south and eastern shores of Florida's big lake. In his book, *A Cracker History of Okeechobee*, Lawrence Will described the tree's abundance this way: "From Sand Cut around to Clewiston and right on to Moore Haven, and on all the islands too, custard apples jammed almost every foot of ground, a belt 50 miles in length and mostly 2 miles wide from the shore slap back to the sawgrass."

The crooked trunk of a custard apple tree climbed a twisted path before reaching its crown at 50 to 60 feet. Its branches were contorted as well, with 3- to 5-inch, wedge-shaped leaves that were bright green above and pale below. The wood was too soft to be used for lumber and didn't make a good fire, but its roots were light and spongy enough to serve as a good substitute for cork. Commercial fishermen often used them to float their nets. Its fruit was arguably edible — "a mass of seeds in soft and pulpy meat," according to Will. Some say its taste resembled that of a persimmon, but few partook of custard apple custard or custard apple jelly.

By these descriptions, the custard apple didn't have much going for it. Its most attractive feature was its cream-colored blossom, "white on one side," Will said, "and blood-red on the other, which gave it a touch of color."

The custard apple tree had the misfortune of thriving on wet, swampy ground. It sprang from rich soil — soil coveted by farmers. Thousands of acres of custard apples fell to ax, saw and tractor, making way for vegetable crops, sugar cane and cattle pasture. The few remaining trees were vanquished in the great hurricanes of 1926 and '28. Although still scattered through the Keys, Bahamas and West Indies, the custard apples of Okeechobee are long gone.

As a tribute to its place in Lake Okeechobee's history, the Belle Glade Garden Club decided to plant a few custard apple trees in the city park.

"Where do you suppose they got the seeds?" Will asked. "Now folks, I kind of hate to tell you this, but I guess it'll do no harm. Dadblame it all, they got the seeds from South America, which shows you how times have changed."

—Scott Ball